



Board gender diversity and dividend policy in Australian listed firms: the effect of ownership concentration

Ernest Gyapong¹ · Ammad Ahmed² · Collins G Ntim³ · Muhammad Nadeem²

Published online: 29 June 2019

© Springer Science+Business Media, LLC, part of Springer Nature 2019

Abstract

We examine the association between board gender diversity and corporate dividend payout. Our results suggest that although board gender diversity impacts positively on dividend payments, this is only conspicuous in widely held firms. However, when ownership concentration is high, board gender diversity reduces dividend payments. We demonstrate that women directors have the greatest impact on dividend payments when there are three or more women on the board. Our results indicate that the financial crisis period was associated with high dividend payments; however, women directors restrained the payment of dividends during the crisis period. These results suggest that board gender diversity may be an effective CG mechanism for alleviating principal-agent conflicts but not principal-principal agency conflicts. Our results are robust to endogeneity, as well as alternative proxies and estimation techniques.

Keywords Gender diversity · Dividend policy · Ownership concentration · Board independence

✉ Ernest Gyapong
e.gyapong@massey.ac.nz

Ammad Ahmed
ammad.ahmed@aut.ac.nz

Collins G Ntim
C.G.Ntim@soton.ac.uk

Muhammad Nadeem
muhammad.nadeem@aut.ac.nz

¹ School of Accountancy, Massey University, Manawatu, Palmerston North, New Zealand

² Auckland University of Technology, Auckland, New Zealand

³ University of Southampton, Southampton, UK

A major financial decision that corporate boards encounter is dividend policy. Miller and Modigliani (1961) suggest that dividend policy is irrelevant in perfect and frictionless markets. Nevertheless, since markets are imperfect in the real world, dividend policy may become a tool for resolving several market imperfections, including agency problems (Dhanani, 2005). These agency problems may arise between firm insiders (managers and controlling shareholders) and outside investors (Easterbrook, 1984; Jensen, 1986). Dividend payouts may reduce the extent of controlling shareholder expropriation or managerial discretionary expenditure (Gugler & Yurtoglu, 2003; Jensen, 1986). From an agency theory perspective, the reduction in free cash flows as a result of dividend payouts increases the frequency to raise capital and thereby increasing capital market monitoring (Easterbrook, 1984; Rozeff, 1982). This agency theory perspective also links dividend policy to corporate governance (Adjaoud & Ben-Amar, 2010). Motivated by this, studies have linked dividend policy to several corporate governance (CG) mechanisms, such as non-executive directors (Setia-Atmaja, 2010), investor protection (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 2000a, 2000b; Mitton, 2002), composite CG indices (Adjaoud & Ben-Amar, 2010; Gugler & Yurtoglu, 2003; Mitton, 2002), among others.

Corporate boards are responsible for major corporate decisions, such as dividend policy (Chen, Leung, & Goergen, 2017) and the effectiveness of such decisions is dependent on the characteristics of the board. Accordingly, prior studies have examined the effect of board characteristics, including board independence (Schellenger, Wood, & Tashakori, 1989), board composition (Adjaoud & Ben-Amar, 2010) and director busyness (Sharma, 2011) on dividend policy. Recently, however, stakeholders have called for greater emphasis on gender diversity within corporate boards and empirical evidence suggests that gender diversity affects board effectiveness. For instance, Butler (2012) suggests that women directors lead to the formation of sub-groups on boards, which can enhance executive monitoring. Adams and Ferreira (2009) find that board members' meeting attendance improves when there are female directors on the board. There is also evidence that diverse boards demand higher audit efforts (Gul, Srinidhi, & Tsui, 2008). Other studies have also documented positive relationships between board gender diversity and a host of items, including firm performance (Gyapong, Monem, & Hu, 2016; Liu, Wei, & Xie, 2014), board monitoring (Triana, Miller, & Trzebiatowski, 2013), and mergers and acquisitions (Levi, Li, & Zhang, 2014), among others.

In line with these, a few studies have also examined the relationship between board gender diversity and dividend policy, but have produced mixed results. Studies focusing on the US (see Chen et al., 2017; Byoun, Chang, & Kim, 2016), where ownership concentration is low and legal minority shareholder protection is high, suggest a positive gender diversity-dividend payment relationship. However, mixed results have been reported in the civil law country of Spain and the emerging market of Russia, India and China (Pucheta-Martínez & Bel-Oms, 2016; McGuinness, Lam, & Vieito, 2015; Saeed & Sameer, 2017), where minority shareholder protection is low and ownership concentration is high. The objective of this paper is to re-examine this relationship in Australia by considering how the relationship might vary with executive and non-executive directors, a critical mass of women directors, and crisis and non-crisis periods, as well as ownership concentration.

There are two key motivations for undertaking this research. First, within the Australian setting, the external regulatory environment offers stronger protection for

minority shareholders and this often encourages minority shareholders to apply greater pressure for dividend payments (La Porta et al., 1998). At the same time, ownership is highly concentrated (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1999; Setia-Atmaja, 2009). Thus, on the one hand, minority shareholders seeking to reduce the agency problem of free cash flow may influence the board (including women directors) to increase dividend payments. On the other hand, rent-seeking majority shareholders may influence women directors to reduce dividend payments in order to facilitate their rent-seeking objective. Such conflicting predispositions may affect how women directors affect dividend policy. Second, ownership structure has a considerable influence on board decisions (Bebchuk & Hamdani, 2009). In particular, the influence of concentrated ownership on the board may either reduce or increase agency conflicts (Setia-Atmaja, 2009). For example, large blockholders may either monitor managers intensely in order to reduce managerial expropriation (Chen, Cheung, Stouraitis, & Wong, 2005) or influence managers to act in a way that facilitates their expropriation of minority shareholders' wealth (Konijn, Kräussl, & Lucas, 2011; Renneboog & Szilagyi, 2015a, 2015b). In fact, prior studies (Lamba & Stapledon, 2001; Setia-Atmaja, Haman, & Tanewski, 2011; Setia-Atmaja, 2009; Nenova, 2003) suggest that blockholders enjoy private benefits of control in Australia. This research offers an opportunity to examine the key role that rent-seeking majority shareholders play in the dividend payment decisions of women directors.

Using 326 unique non-financial firms from top 500 ASX listed companies for the period 2009 to 2014, we investigate the effect of board gender diversity on dividend policy in Australia. After controlling for other variables, such as free cash flows, retained earnings to total assets ratio, and other CG and firm-specific characteristics, we find that although board gender diversity impacts positively on dividend policy, this is only conspicuous with non-executive women directors. On the contrary, executive women directors have no effect on dividend payments. Our results suggest that board gender diversity has the greatest impact on dividend policy when there are three or more women directors. Further, although the financial crisis was associated with high dividend payout, women directors restrained (increased) the payment of dividends during (after) the crisis period. We also find that women directors increased (reduced) dividend payments in widely held (closely held) firms. Our results are robust to endogeneity, as well as alternative proxies and estimation techniques.

Our study makes several important contributions to the literature. First, we contribute to the literature by providing evidence on the role of board gender diversity on dividend policy in Australia. Contrary to previous studies that focus on institutional settings in the USA (Byoun et al., 2016; Chen et al., 2017), Spain (Pucheta-Martinez and Bel-Oms, 2016) and the emerging markets of Russia, India and China (McGuinness et al., 2015; Saeed & Sameer, 2017), the institutional setting in Australia is different. This study is, therefore, essential because it increases our knowledge about how women directors make dividend payment decisions in light of business environments with such conflicting predispositions from minority and majority shareholders. Second, we examine the moderating effect of ownership structure (concentrated ownership and dispersed ownership) on the dividend paying decisions of women directors. The study thus sheds light on how two different types of ownership structure affect the dividend paying decisions of women directors. In addition to its theoretical contributions, agency

theory suggests two types of agency conflicts: (i) principal-agent conflicts; and (ii) principal-principal conflicts. Our findings suggest that whilst gender diversity may alleviate principal-agent conflicts by increasing dividend payments in widely-held firms, it may exacerbate principal-principal conflicts by reducing dividend payments in closely-held firms and thus keep corporate resources at the control of insiders. Third, critical mass theory suggests that women directors have the greatest impact on board decisions when there are three or more (Kanter, 1977; Kristie, 2011). Consistent with this, Gyapong et al. (2016) and Liu et al. (2014) also find that gender has the greatest impact on firm value when there are three or more women directors. We provide new evidence that subsequent increases in the number of women directors from one, to two, and then to three, leads to subsequent increases in dividend payments. This suggests that the ability of women directors to reduce agency conflicts by increasing dividends and freeing corporate resources from insider control is enhanced when there are three or more women directors on the board. From a policy perspective, our findings support the 2010 gender diversity recommendation in Australia that encourages firms to increase the number of women directors. Finally, Hirtle (2014) notes high dividend payments during the financial crisis. Our study contributes to the literature by documenting that women directors restrained the payment of dividends during the crisis period. This implies that women directors make dividend payment decisions with recourse to business cycles. Thus, in crisis periods when firms find it difficult to raise external finance, they restrain dividend payments in order to ensure that enough cash is available to finance the firm's operations.

The structure of this study is as follows. Section 2 discusses the institutional setting in Australia. Section 3 reviews relevant literature and develops hypotheses. Section 4 focuses on research methodology. The results are discussed in Section 5. Robustness tests are presented in Section 6. Section 7 concludes the study.

Institutional setting

Australia offers an interesting corporate governance setting. Similar to the UK and the US, Australia is a common law country with a developed stock market (La porta et al., 1998; Setia-Atmaja et al., 2011). These result in a stronger external corporate regulatory environment leading to stronger shareholder protection (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1997). At the same time, there is a distinctive ownership concentration feature that may impact on corporate decisions. Thus, capital markets in Australia are characterised by high ownership concentration (van Essen, van Oosterhout, & Carney, 2012; Monem, 2013) that result in principal-principal conflicts, where concentrated owners expropriate the wealth of minority shareholders (Lamba & Stapledon, 2001; Setia-Atmaja, 2009). In fact, Nenova (2003) report that the level of private benefit of control in Australia is an "outlier" for countries with strong legal protection for investors. The Australian corporate environment is thus in contrast to happenings in other common law countries (like Canada and New Zealand) that have stronger external corporate regulatory environment and ownership concentration but do not exhibit rent extraction by concentrated ownership (Nenova, 2003).

To further increase transparency and shareholder protection, Australia pursued reforms which aimed to enhance good corporate governance through improved board decisions. Australia introduced the first ASX corporate governance (CG) principles and recommendations in 2003. Second and third editions were introduced in 2007 and 2010. Currently, listed firms are required to comply with the latest version that was released in 2014. These CG codes are similar to that of the UK and the US and recommend a unitary board structure consisting of both executive and non-executive directors. Further, compliance with CG codes in Australia is voluntary and firms are required to either comply with the CG principles or explain any non-compliance.

In terms of women directors, the 2010 ASX Corporate Governance Principles and Recommendations (CGPR) include the gender diversity recommendations put forward by the Australian Government's Corporations and Market Advisory Committee. Although the recommendations were adopted in 2010, listed firms were not obliged to comply until January 2011. In contrast to the happenings in other European countries, this recommendation operated on a voluntary basis with no quota requirements. Nevertheless, the amendment required listed firms to establish and disclose a diversity policy, measure and disclose the number of women in leadership positions and set measurable objectives to achieve gender diversity. In addition, like any other recommendation in the CGPR, firms are required to provide explanations for non-compliance. The implementation of the gender diversity recommendation from the ASX Corporate Governance Council in 2011, has led to a significant increase in the number of women on the boards of Australian listed firms. For example, according to real-time data of the Australian Institute of Company Directors (AICD), women held only 8.3% of total board seats in ASX 200 firms as at 2009, but this has increased to 23.4% in June 2016. The data also show that since the beginning of 2016, a total of 36 women have been appointed to ASX200 boards. Further, the percentage of women directorships in ASX300 and ASX All Ordinaries boards in 2016 were 21.1% and 18.1%, respectively. Nevertheless, the AICD also noted that 20 boards in ASX200 and 154 boards in ASX All Ordinaries still did not have one female director.

Literature review and hypotheses

Theoretical literature review

Agency theory conceptualizes a framework, whereby shareholders, who are the principals of a company employ the services of agents (managers) in the running of their company (Jensen, 1986; Fama & Jensen, 1983). In normal times (absence of agency problems), shareholders are optimistic about the firm's future cash flows because the interests of the contracted parties are aligned (Saeed & Sameer, 2017). However, when the interests of the contracting parties are misaligned, two types of agency conflicts arise, namely, (i) principal-agent conflicts (PAs) and (ii) principal-principal agency conflicts (PPs) (Su, Xu, & Phan, 2008; Li & Qian, 2013). These agency conflicts are noticeably embedded in country-level institutional structures (La Porta et al., 2000a, 2000b; Young, Peng, Ahlstrom, Bruton, & Jiang, 2008).

PAs are prevalent in Anglo-Saxon countries with strong legal investor protection and dispersed ownership structures (La Porta et al., 2000a, 2000b). Within PAs,

shareholders are homogeneous in relation to their goal of maximizing returns on their investment¹ (Su et al., 2008). However, the separation of ownership from control results in asymmetric information between dispersed shareholders and managers (Saeed & Sameer, 2017). This facilitates managerial opportunism and makes it difficult to ensure that managers act in the interests of shareholders because it becomes costly for the dispersed shareholders to individually monitor managers (Fama & Jensen, 1983; Jensen & Meckling, 1976; La Porta et al., 2000a, 2000b). Accordingly, in countries where PAs are prevalent, the legal system adjusts to offer stronger protection to shareholders (La Porta et al., 1998). This results in a higher influence of shareholders on important business decisions (Saeed & Sameer, 2017). For example, agency theory suggests that the board of directors is responsible for executive monitoring (Bathala & Rao, 1995). Therefore, one way to reduce PAs is via shareholders ability to exploit the stronger legal protection to pressure the board to pay dividends with the view to freeing corporate resources that may otherwise be used for the purchase of managerial perquisites (La porta et al., 1998; Jiraporn, Kim, & Kim, 2011). Nevertheless, even without shareholder pressure, effective and monitoring intensive boards may still reduce PAs by increasing dividend payouts to reduce discretionally funds that may be used for sub-optimal investments by managers (Fama & Jensen, 1983; Demsetz & Lehn, 1985). Thus, if board monitoring and effectiveness affect agency conflicts (Jensen & Meckling, 1976; Fama & Jensen, 1983), then, board characteristics and composition, such as gender diversity may play an important in reducing PAs.

Another source of agency conflict is principal-principal agency conflicts (PPs). This type of agency conflict occurs between two different categories of principals (controlling shareholders and minority shareholders) because their interests are incongruent (Ward & Filatotchev, 2010). PPs are normally evident in countries with weaker legal protection for investors (Li & Qian, 2013), concentrated ownership structures (La Porta et al., 2006); and inactive market for corporate control (Young et al., 2008). In this case, controlling shareholders may be incentivized to expropriate corporate wealth at the expense of minority shareholders (Ward & Filatotchev, 2010). This may be achieved in two ways. First, controlling shareholders may facilitate their rent extraction objective by influencing board and managerial appointments (Monem, 2013; Young et al., 2008). Thus, managers and board members are answerable to majority shareholders because they are either related or affiliated (Monem, 2013). This reduces the board and managers' ability to curtail majority shareholders' expropriation. Second, even when the board is independent, majority shareholders can exert more pressure over the board and managers relative to minority shareholders, leading to a transfer of value from the firm to majority shareholders (Ward & Filatotchev, 2010). Controlling shareholders can conceal their expropriation because the weaker external legal shareholder protection discourages minority shareholders from seeking redress through the courts. Further, the market for corporate control that resolves PAs are ineffective because shares are highly illiquid due to the high levels of ownership concentration in these countries (Peng, 2006). This renders both "voice" and exit-based channels of traditional CG mechanisms ineffective in dealing with PPs (Arthurs, Hoskisson, Busenitz, & Johnson, 2008).

¹ The homogeneity of shareholder interests results in the interest alignment hypothesis, whereby the sizeable stakes of blockholders motivates them to bear the costs of monitoring managers for the interest of all other shareholders (Hirschman, 1970a).

Indeed, Young et al. (2008) argue that the expropriation of minority shareholder wealth by majority shareholders is higher during crises periods due to the high level of investor apathy. This argument is consistent with the evidence of Johnson, Boone, Breach, and Friedman (2000) that suggests that even highly reputable majority shareholders exploited minority shareholders' wealth during the 1997–1998 Asian financial crisis.

To resolve PPs, Li and Qian (2013) suggest the strengthening of minority shareholder protection. The authors argue that stronger legal shareholder protection may increase recourse to the courts and thus reduce majority shareholders' appetite for expropriation (Young et al., 2008). For instance, minority shareholders may resort to the courts to restrain the appointment of board members and managers, who may be affiliated or related to the majority shareholders. Further, with stronger legal shareholder protection, minority shareholders may be incentivized to pressure the board to make decisions that further their interests. For example, they may pressure the board to pay dividends with a view to freeing resources out of the control of majority shareholders. These seem to suggest that traditional CG mechanisms, such as board characteristics and composition may be effective in reducing PPs in jurisdictions with stronger legal shareholder protection. On the contrary, others including La Porta et al. (1999), Setia-Atmaja et al. (2011), and Villalonga and Amit (2006) suggest that PPs can still exist in jurisdictions with strong legal protection for investors. Consequently, Ward and Filatotchev (2010) argued that traditional CG mechanisms, such as board composition and attributes that rely on the strength of legal investor protection to deal with PAs may be ineffective against PPs.

Empirical literature review

Following the approach of Gaur and Kumar (2018), we conduct a systematic literature review and provide a summary in Table 1. In their seminal paper, La Porta et al. (1998) argued that dividend payment is an outcome of an effective system of legal protection of shareholders. The authors argued that in countries, where the legal system offers protection to shareholders, shareholders are able to exert pressure on insiders to pay dividends. On the contrary, in jurisdictions, where legal protection for shareholders is low, investor pressure for dividend payments is at best low. This puts the decision to pay dividends at the discretion of insiders and, consequently, reduces dividend payments. Accordingly, existing studies (Adjaoud & Ben-Amar, 2010; Chen et al., 2017) suggest that the extent of legal protection offered to shareholders affects how internal corporate governance mechanisms affect dividend payments. Due to this, studies examining the effect of board characteristics, including board gender diversity, on dividend payments have focused on countries with different institutional settings (depending on the level of shareholder protection).

Focusing on an institutional setting with high legal shareholder protection, Schellenger et al. (1989) investigated the effect of board composition on dividend payments in the USA. They reported that board of director composition, specifically board independence increases dividend payments. Their results are consistent with the findings of Jiraporn et al. (2011) that also suggested a positive relationship between board structure and dividend payments in the USA. Elsewhere, Sharma (2011) reported a positive relationship between board independence and the propensity to pay dividends in the USA and concluded that independent directors are important for dividend

Table 1 Summary of studies on corporate governance (board characteristics) and dividend payment

Authors	Journal Coding Categories				Ownership concentration	Investor Protection
	Primary variables		Sample & Period			
	Dependent	Independent	Moderators			
Schellenger et al. (1989)	JoM	Correlation study between independent directors and dividend payout		USA (1986)	Low	High
Adjaoud and Ben-Amar (2010)	JBFA	Dividend payout ratio	Corporate governance score	Free cash flow; Firm growth (2002–2005)	High	High
Sharma (2011)	JCF	Dividend dummy	Board independence	None	Low	High
Jiraporn et al. (2011)	TFR	Dividend dummy	Corporate governance score	None	Low	High
Byoun et al. (2016)	APIJS	Dividend dummy; dividend payout ratio	Boardroom gender diversity	Free cash flow	Low	High
Chen et al. (2017)	JCF	Dividend payout ratio	Boardroom gender diversity	Corporate governance	Low	High
Abdelsalam, El-Masry, and Elsegni (2008)	MF	Dividend dummy; dividend payout ratio	Board size; board independence; CEO chair duality; institutional ownership	None	High	Low
Kowalewski, Stetsyuk, and Talavera (2008)	PCE	Dividend payout ratio	Corporate governance index	None	High	Low
Pucheta-Martinez and Bel-Oms (2016)	laCC	Dividend dummy; dividend payout ratio; dividend per share	Boardroom gender diversity	None	High	Low

Table 1 (continued)

Authors	Journal	Coding Categories		Sample & Period	Ownership concentration	Investor Protection
		Primary variables	Moderators			
		Dependent	Independent			
McGuinness et al. (2015)	APJM	Dividend payout ratio; dividend dummy	CEO gender; two or more females; CEO tenure and age; CEO chairman duality; board independence; directors' equity stake	All Chinese firms (2000–2008)	High	Low
Saeed and Sameer (2017)	IBR	Dividend yield; dividend payout ratio	Boardroom gender diversity	Emerging markets of Russia, India and China (2007–2014)	High	Low
Australian Institutional Setting						
Setia-Atmaja et al. (2011)	JBFA	Dividend payout ratio	Board independence	Family listed Australian firms (2000–2005)	High	High
Lee (2010)	PBFJ	Dividend payout ratio	Minority shareholder base	All Ordinaries Index Australia (2004–2008)	High	High
Setia-Atmaja (2010)	IJMF	Dividend payout ratio	Board independence	Family listed Australian firms (2000–2005)	High	High
Yarram and Dollery (2015)	MF	Dividend payout ratio	Board structure; financial characteristics of firms	All Ordinaries Index Australia (2004–2009)	High	High
Yarram (2015)	IJMF	Dividend payout ratio	Corporate governance ratings	All Ordinaries Index Australia (2004–2009)	High	High

Table 1 (continued)

Authors	Journal	Coding Categories	Sample & Period	Ownership concentration	Investor Protection	
		Primary variables				
		Dependent	Moderators			
Shamsabadi, Min, and Chung (2016)	IJMF	Dividend payout ratio	Corporate governance index	Free cash flow; Firm growth	All listed Australian firms (2001–2013)	High
Balachandran, Khan, Mather, and Theobald (2017)	JCF	Dividend dummy; dividend payout ratio	Insider ownership	Traditional and imputation tax system	Australian listed firms (2002–2013)	High

policy. Similarly, Adjaoud and Ben-Amar (2010) documented a positive relationship between board composition and dividend payments in Canada. In direct relation to the current study, a limited number of studies have also examined the gender diversity-dividend payment relationship. For example, Byoun et al. (2016) report a positive relationship between board gender diversity and dividend payments in the USA. Their evidence is consistent with a recent study (Chen et al., 2017) that reported a positive gender diversity-dividend policy relationship in the USA. Thus, the extant literature suggests that in countries with high investor protection, the high investor pressure incentivises board characteristics (including board gender diversity) to impact positively on dividend payments (La Porta et al., 1998). This is consistent with the view that higher investor protection enhances the positive board composition-dividend payment relationship (Adjaoud & Ben-Amar, 2010; Chen et al., 2017; La Porta et al., 1998).

Others have also examined the board composition-dividend policy relationship in institutional settings with low investor protection. For example, Abdelsalam et al. (2008) found no statistically significant relationship between board composition and dividend policy in Egypt. Further, Kowalewski et al. (2008) report that the low shareholder protection in Poland results in lower dividend payments because unlike in many developed countries, shareholders in Poland have no significant power to exert pressure on the board. As for the direct relationship between board gender diversity and dividend payments, Saeed and Sameer (2017) report a negative relationship between board gender diversity and dividend payments, when using data from three emerging markets, including India, Russia and China. In contrast, McGuinness et al. (2015) find no statistically significant relationship between women directors and dividend payments in China. Pucheta-Martínez and Bel-Oms (2016) reported a positive relationship between board gender diversity and dividend policy in Spain, a civil law country with low investor protection. La Porta et al. (1998) attribute the mixed results in this setting to the substitute model of dividend payments. Within this model, the lack of minority shareholder pressure causes boards to succumb to insiders so that dividends are only paid to establish a reputation of decent minority shareholder treatment when insiders are interested in issuing equity.

In the Australian setting with high ownership concentration and high investor protection, existing studies have produced mixed results. Yarram (2015) documented a positive relationship between internal corporate governance structures and both the average dividend payout level and the decision to pay dividends. Others, including Setia-Atmaja (2010), as well as Yarram and Dollery (2015), have examined the effect of board characteristics on dividend payments and reported that board independence has a positive impact on dividend policy. These findings are consistent with that of Shamsabady et al. (2015) that indicated a positive relationship between corporate governance and dividend payments in Australia. Their results suggested that although the relationship is stronger when moderated with free cash flow, it is attenuated by firm growth opportunities. There is also evidence that managerial ownership (Balachandran et al., 2017) and the proportion of minority shareholders (Lee, 2010) increase dividend payments. These results are noticeably consistent with other studies in institutional settings with strong shareholder protection that documented a positive relationship between internal corporate governance structures and dividend policy.

In contrast to these studies, Setia-Atmaja (2009) investigated whether controlling families in Australia use board structure to mitigate or exacerbate PPs. They found that

controlling shareholders decrease board independence to facilitate their rent extraction objective. Their results suggest that, although dividend payments reduce PPs, board independence has no effect on dividend payments in family-controlled firms. Other related studies indicate that controlling shareholders in Australia influence board appointments (Cotter & Silvester, 2003; Monem, 2013), and thus may negatively affect board effectiveness in order to facilitate their rent-extraction objective. However, as shown in Table 1, there is a gap in the literature around how board gender diversity and its attributes may impact dividend payments, and in particular, in a setting that on the one hand, offers high legal protection to minority shareholders so that they are able to exert effective pressure for dividend payment, and on the other hand, has large blockholders, who are keen to restrain dividend payments to fuel their rent-seeking behaviour.

Hypotheses development

Gender diversity and dividend payments

Agency conflicts arise when opportunistic managers misappropriate the wealth of shareholders (Jensen & Meckling, 1976). Whereas higher levels of retained earnings may increase managerial opportunism, dividend payout disincentivises managers from expropriation by reducing retained earnings (Easterbrook, 1984). Thus, retained earnings fuels agency conflicts by increasing managers' inclination to expropriate. Nevertheless, board monitoring reduces agency conflicts (Fama & Jensen, 1983; Jensen & Meckling, 1976). Therefore, to reduce agency conflicts, women directors may increase dividend payments through improved board monitoring. Adams and Ferreira (2009) suggest two ways in which women directors may improve board monitoring. First, through their differential cognitive and psychological characteristics that make their approach different from their male counterparts, and second, through the ability of women directors to improve the monitoring ability of their male counterparts.

The social psychology literature suggests that women have different cognitive and socio-psychological characteristics that make their decision making different from men. For example, relative to men, women demonstrate more conservatism and risk aversion in decision-making (Man & Wong, 2013; Pucheta-Martinez & Bel-Oms, 2016). Similarly, women directors are hardworking and competent (Ittonen, Miettinen, & Vähämaa, 2010), and have better meeting attendance record (Adams & Ferreira, 2009). There is also evidence that women directors ask tough questions and improve board level deliberations (Bugeja, Matolcsy, & Spiropoulos, 2016; Baranchuk & Dybvig, 2009) and focus more on monitoring than male-directors (Chen et al., 2017). In fact, Konrad, Kramer, and Erkut (2008) document instances, where women directors are alone in raising critical questions and voting on important board issues. These qualities will enhance board governance efficiency and subsequently increase the use of monitoring mechanisms like dividend payments in order to reduce agency conflicts.

Another reason to expect women directors to bring about improved board monitoring is through the influence of women directors on male directors. Thus, the presence of women directors on boards affects the behaviour of their male counterparts. For

example, Huse and Grethe Solberg (2006) document that relative to women directors, male directors prepare poorly for board meetings. Similarly, in their seminal paper, Adams and Ferreira (2009) report poor board meeting attendance for male directors. Such behaviours are likely to impact negatively on board monitoring. Nevertheless, the results of Adams and Ferreira (2009) also show that the meeting attendance problem of male directors is mainly conspicuous in firms with all-male boards. However, in gender-diverse boards, the presence of women directors improves the meeting attendance of male directors. This is consistent with Kandel and Lazear's (1992) argument that female directors create peer-pressure by increasing intra-director monitoring. Thus, the gender-effect improves the efficiency of male directors and provides the enhanced board monitoring and efficiency required for resolving agency conflicts (Byoun et al., 2016). Consequently, since high dividend payout is used as a monitoring device (Chen et al., 2017), such monitoring intensive and efficient board may demand higher dividend payment.

Although the managerial power hypothesis has mainly been used to explain the executive pay-setting process, it also offers vital explanations of dividend policy. The managerial power hypothesis suggests that specific structural and socio-psychological mechanisms that influence the board-level decision-making process give managers (especially the CEO) power over the board (Bebchuk & Fried, 2004). Therefore, to the extent that dividend payouts reduce managerial perquisites (Adjaoud & Ben-Amar, 2010), managerial power over dividend policy may reduce the extent of dividend payouts. However, "women are not the typical CEO playing golf on a weekend and socialising together outside the office" Konrad et al. (2008; p. 160). This is important because informal social ties between directors and managers reduce the extent of independence and objective monitoring (Schmidt, 2015). On the contrary, director independence reduces managerial power (Jiraporn, Leelalai, & Tong, 2016). Therefore, with reduced social ties with managers, women directors are more likely to be independent (Schmidt, 2015) and able to reduce managerial power and perquisites by increasing dividend payout (Anderson, Reeb, Upadhyay, & Zhao, 2011; Lucas-Pérez, Mínguez-Vera, Baixauli-Soler, Martín-Ugedo, & Sánchez-Marín, 2015).

Empirically, although only a few studies have examined the women director-dividend nexus, a large stream of literature focuses on the monitoring effects of women directors on other firm attributes. For example, Adams and Ferreira (2009) report that women directors are effective monitors and are more likely to serve on monitoring-intensive committees. Similarly, Gul et al. (2008) find that women directors demand higher audit effort. There is also evidence that women directors reduce earnings management (Arun, Almahrog, & Aribi, 2015) CEO pay (Bugeja et al., 2016) and managerial risk-taking (Khaw, Liao, Tripe, & Wongchoti, 2016). These studies suggest that women directors improve corporate governance and reduce agency conflicts. In terms of the direct relationship between women directors and dividend payment, studies mainly report a positive relationship. For example, Byoun et al. (2016), Chen et al. (2017) and Pucheta-Martínez and Bel-Oms (2016) report a positive relationship, whilst Saeed and Sameer (2017) report a negative relationship. Based on these arguments, we hypothesise that:

H1 Board gender diversity has a positive relationship with dividend policy.

Executive versus non-executive women directors The monitoring propensity of a board is a function of the board's independence (Jaggi, Leung, & Gul, 2009; Osma, 2008; Chen, Cheng, & Wang, 2015), which can be measured as the proportion of non-executive directors on the board (Adams & Ferreira, 2009; Bugeja et al., 2016). Thus, non-executive directors are more independent of management than executive directors are and will, therefore, provide more effective monitoring (Chen et al., 2015; Liu et al., 2014) that can result in increased dividend payments.

From an agency theory perspective, non-executive directors are expected to be independent arbiters in resolving agency conflicts between the principal and the agent (Fama & Jensen, 1983; Linck, Netter, & Yang, 2008). In fact, non-executive directors are primarily utilised to monitor the behaviour of senior management (O'Sullivan, 2000). Consequently, existing studies suggest that non-executive directors increase firm transparency (Knyazeva, Knyazeva, & Masulis, 2013), reduce managerial entrenchment (Jiraporn et al., 2016) and expropriation (Setia-Atmaja et al., 2011). These indicate that relative to executive directors, non-executive directors may have a greater incentive to free-corporate resources out of insider control by increasing dividend payments (Prasanna, 2014; Pucheta-Martínez & Bel-Oms, 2016). This is also consistent with the empirical findings of Byoun et al. (2016) and Sharma (2011) that suggest a positive relationship between non-executive directors and dividend payments.

Nevertheless, in the specific case of executive and non-executive women directors, existing studies have produced mixed results. Saeed and Sameer (2017) report a negative relationship between non-executive women directors and dividend payments, whilst Chen et al. (2017) find a positive relationship. On the contrary, Pucheta-Martínez and Bel-Oms (2016), report that neither executive nor non-executive women directors have an effect on dividend payments. However, other studies have shown that female CEOs and CFOs are less opportunistic (Peni & Vähämaa, 2010; Gavious, Segev, & Yosef, 2012) and are associated with higher dividend payments (Hunter & Sah, 2014). Thus, if female executives are less opportunistic, then, they are likely to increase dividend payments in order to reduce managerial opportunism. In light of the above discussion, we argue that both executive and non-executive women directors may impact positively on dividend payments. However, we expect the association to be stronger for non-executive women directors due to their independence. Based on these, we hypothesise that:

H1A The board gender diversity-dividend policy relationship is stronger for non-executive women directors relative to executive women directors.

A critical mass of women and dividend payments Glazer and Kristol (1976) suggests that women directors may be able to make a greater impact on firm-level outcomes if there is a critical mass. This is because women directors' achievements are diminished by their underrepresentation in male-dominated boards (Kanter, 1977). Performance pressure, role entrapment and social isolation operate to diminish the achievement of women when they are only a small minority (Spangler, Gordon, & Pipkin, 1978). Based on these, Kramer et al. (2006) proposed the critical mass theory and suggested that the effect of women directors is more profound when there are three or more women on the board. Kristie (2011) summarised the critical mass theory by suggesting that one woman is a token; two women is a presence and three or more women is a

voice. These imply that women directors can make a significant impact on firm outcomes when there are three or more women on the board. Empirically, existing studies suggest that subsequent increases in the number of women directors from one, to two, to more than two, are associated with subsequent increases in a firm's value (Liu et al., 2014; Gyapong et al., 2016) and increased information disclosure (Ahmed, Monem, Delaney, & Ng, 2017). However, this relationship has not been tested in terms of dividend payments. Based on these, we hypothesise that:

H1B Subsequent increases in the number of women directors from one, to two, to more than two lead to a subsequent increase in dividend payments.

Gender diversity and dividend payment during financial crisis There are countervailing arguments regarding the effect of women directors on dividend payments during crises periods. Therefore, we hypothesise for and against women director-induced increment in dividend payments during the global financial crisis.

The catering theory of dividend suggests that the decision to pay dividends is influenced by investor demand and that managers pay dividends when investors put a stock price premium on dividend payers (Baker & Wurgler, 2004). In line with the catering incentive for dividend payments, Li and Lie (2006) note that managers increase existing dividends based on investor demands and are rewarded by capital markets for responding to investor demand for dividends.

Financial crisis brings in its trail a contraction in demand (Mian & Sufi, 2010) that result in diminished growth opportunities (Ankudinov & Lebedev, 2016). The decline in investment opportunities during the crisis increases the agency costs of cash retention for two main reasons. First, it raises the possibility of management making bad investment decisions (Bliss, Cheng, & Denis, 2015). Second, it incentivises insider expropriation since it increases the amount of corporate resources available to insiders. For example, Young et al. (2008) argued that shareholder expropriation is high during crises periods. Consequently, investor demand for dividend is likely to increase during the financial crisis to reduce the agency cost of cash retention. Consistent with this, prior studies (Ankudinov & Lebedev, 2016; Floyd, Li, & Skinner, 2015; Hirtle, 2014) suggest increases in dividend payments during the crisis period.

Given that the increments or payments of dividends during the crisis period is driven by catering incentives (shareholder demand for dividends) motivated by investors desire to reduce agency cost of cash retention, firms' refusal to pay or increase dividends may escalate conflicts with their shareholders. Consistent with this, Smits (2012) argues that shareholders could sell their shares if firms do not meet their demand for dividends during the crisis period. However, Valenius (2007) documents that women are more conciliatory and peaceful than men. Women are highly sensitive towards others (Bilimoria, 2000), have the potential to reduce conflicts (Nielsen and Huse, 2010), and are more likely to promote ethical behaviour (Gull, Nekhili, Nagati, & Chtioui, 2018). Thus, to reduce conflict with shareholders, women directors may increase dividend payments during the crisis period. Further, Adams and Ferreira (2009) suggest that women directors affect agency costs negatively, and the effect is stronger when the agency cost is higher. Therefore, to the extent that the crisis period exacerbates the agency cost of cash retention, the positive effect of women directors on dividend payments will be greater to deal with the increased agency cost of cash retention. Accordingly, we argue that women directors

will have a greater positive impact on dividend policy during the crisis period. Based on these arguments, we hypothesise that:

H1Ca Gender diversity will increase dividend payments during the crisis period.

The financial crisis resulted in credit rationing and raised uncertainty about the future supply of credit (Bliss et al., 2015). Consistent with this, Campello, Graham, and Harvey (2010) in a survey of chief executives reported that firms experienced higher cost of borrowing, tightened credit supply and difficulty renewing existing credit agreements during the crisis period. Consequently, firms that require additional cash injections during the crisis period may need to rely on equity funding. However, financial crisis results in lower investor confidence (Osili & Paulson, 2007). Consequently, firms paid higher dividends during the crisis period (Ankudinov & Lebedev, 2016; Floyd et al., 2015) in order to convince investors to provide the required capital injection. Prior studies (Adhikari, 2018; Liang et al., 2015; Loukil & Yousfi, 2016; Hunter & Sah, 2014) suggest that women directors are conservative and are associated with higher cash holding. Therefore, with the reduced investment opportunities during the crisis (Floyd et al., 2015) firms with women directors are less likely to require immediate cash injections that may necessitate a higher dividend to convince investors. Hence to reduce the higher agency cost of cash retention during the crisis, women directors may restrain dividend payments aimed at attracting additional capital injections. Based on these arguments we hypothesise that:

H1Cb Gender diversity will reduce dividend payments during the crisis period.

Gender diversity and dividend payout: The effect of ownership concentration

From an agency theory perspective, the effect of ownership concentration on the board gender diversity-dividend payout nexus may be explained by two competing hypotheses: the interest alignment hypothesis and the expropriation hypothesis. The interest alignment hypothesis signifies the absence of PP. Within the interest alignment hypothesis, shareholders are homogeneous regarding their goal of maximising returns on their investments (Hirschman, 1970b; Su et al., 2008). Consequently, controlling shareholders either voluntarily align their interests with that of dispersed shareholders or are prevented from expropriation due to the strength of the external corporate regulatory environment (Su et al., 2008). In this case, they are motivated to pursue activities that inure to the benefits of all shareholders. Controlling shareholders thus become a cheaper supply of an otherwise costly monitoring CG device that reduces agency problems between managers and all shareholders (Konijn et al., 2011). They correct managerial inefficiency and limit the extent of managerial overinvestments (Shleifer & Vishny, 1986). Higher levels of ownership concentration increase dividend payment in countries with higher levels of investor protection (La Porta et al., 2000a, 2000b). Similarly, Chen et al. (2005) find that high ownership concentration reduces managerial perquisites by increasing dividend payouts. These suggest that, when the interest alignment hypothesis is dominant, high ownership concentration becomes a monitoring CG mechanism that influences dividend payout policy.

In contrast, the expropriation hypothesis is concerned with pervasive PPs and suggests that high levels of ownership concentration can lead to minority shareholder expropriation. Accordingly, Shleifer and Vishny (1986) contend that the major CG problem worthy of attention is the expropriation of minority shareholder wealth by majority shareholders. Similarly, Bhojraj and Sengupta (2003) note that controlling shareholders may simply be interested in securing private benefits instead of monitoring for the common good of minority shareholders. The extent of controlling shareholders' expropriation is limited to the level of internal resources within their control (Konijn et al., 2011), and therefore, rent-seeking controlling shareholders may reduce dividend payments to facilitate this objective (Renneboog & Szilagyi, 2015a, 2015b). This indicates that within the expropriation hypothesis, high ownership concentration is an indication of weaker CG that results in the expropriation of minority shareholder wealth. Nevertheless, prior studies (Setia-Atmaja, 2009; Setia-Atmaja et al., 2011; Lamba & Stapledon, 2001; Nenova, 2003) suggest that the expropriation hypothesis is dominant in Australia. Consequently, we discount the dominance of the interest alignment hypotheses in Australia and focus on the expropriation hypotheses. Thus, within Australia, where the expropriation hypothesis is dominant, ownership concentration is an expropriation tool that signifies weaker CG.

Controlling shareholders have the incentive to influence board appointments (Holderness, 2003). In fact, Monem (2013) notes that Australian firms with large ownership concentration have larger, but less independent boards. This is consistent with the findings of Setia-Atmaja (2009) that suggest that ownership concentration reduces board independence in Australia. Accordingly, to the extent that controlling shareholders have an influence on board appointments (Byrd & Hickman, 1992; Holderness, 2003; Monem, 2013), and have an incentive to expropriate corporate resources (Setia-Atmaja, 2009), they may either reduce the appointment of truly independent women directors or influence the appointment of women directors who are less independent. Consequently, although the dominance of the expropriation hypothesis signifies weaker CG and high agency conflicts (Bhojraj & Sengupta, 2003) that will necessitate the intervention of gender diversity as a substitute CG mechanism (Gul et al., 2008) in order to free resources out of insiders control, the monitoring ability of women directors on boards of firms with high ownership concentration may be limited. We, therefore, argue that the positive board gender diversity-dividend payout relationship will be weaker in firms with high ownership concentration. Based on these arguments we hypothesise that:

H2 Ownership concentration reduces the positive board gender diversity-dividend policy relationship.

Research methodology

Data

All the data used in this study were obtained from the Morningstar database. Our sample consists of the top 500 listed firms on the Australian Stock Exchange for the

period 2009–2014 inclusive. The sample distribution is shown in Table 2. Consistent with existing literature (Prommin, Jumreornvong, & Jiraporn, 2014), we exclude financial and utility firms from our sample because they are subject to different reporting and CG requirements. We also exclude firms with at least one full year of missing information (including firms which were delisted due to mergers and acquisitions). After imposing these restrictions, our sample consisted of 326 unique firms over a 6-years period. A major criticism of these restrictions is the introduction of survivorship bias into the sample selection process. Nevertheless, the sample criteria have two major advantages. First, the criteria generated larger firm-year observations than have been used in prior Australian studies (Capezio & Mavisakalyan, 2016a, 2016b; Monem & Ng, 2013) and this augurs well for generalisation. Second, the criteria reduce the possibility of attrition bias (Baltagi, Feng, & Kao, 2012).

Variable measurements

The study investigates the effects of board gender diversity (*Women*) on dividend payments in Australian listed firms. Consequently, *Women* is the variable of interest in this study. Consistent with prior literature (Adams & Ferreira, 2009; Liu et al., 2014), we capture *Women* using the percentage of women directors.

The dependent variable is dividend payout and we capture this in two ways. First, in line with Kumar (2006), as well as Pucheta-Martínez and Bel-Oms (2016), we use the natural logarithm of the total amount of dividends paid (*DIV*). Second, we employ the dividend payout ratio measured as the ratio of dividend per share to net income (*DIVY*). This is also consistent with previous studies (Saeed & Sameer, 2017; Attig, Boubakri, El Ghoul, & Guedhami, 2016; and Bradford, Chen, & Zhu, 2013).

Consistent with the literature in this area, we include a number of control variables namely: board independence (*BIND*), board size (*BSIZE*), firm performance (*Performance*), price-to-book ratio (*P/B*), free cash flow to total asset ratio (*FCF*), firm size (*SIZE*), leverage (*LEV*), Ownership concentration (*OWNCONC*), Earnings (*Earnings*), Industry effects (*Industry*) and Year effects (*Year*). *BIND* captures board independence and is measured as the number of non-executive directors expressed as a percentage of total board size. Saeed and Sameer (2017) suggest a positive relationship between board independence and dividend payments. Further, *BSIZE* captures board size and is measured as the natural logarithm of total board size. Pucheta-Martínez and Bel-Oms (2016) document that board size impacts positively on dividend payments. Another control variable used is firm performance, which we define as *Performance* and is operationalized as net profit over total assets. Authors, such as Saeed and Sameer (2017), as well as Byoun

Table 2 Sample selection

Initial sample of ASX Top 500 by market capitalisation as of 2009	500
Delisted due to mergers, acquisitions etc. from 2009 to 2014	(71)
Firms with missing corporate governance or financial data are excluded	(33)
Firms from financial and utility sectors are excluded	(70)
Final sample	326
Firm year observations (i.e. 326 * 6 years)	1956

et al. (2016), report a positive relationship between *Performance* and dividend payment. Ownership concentration, which is defined as *OWNCONC*, is also considered. Following, Jiang, Habib, and Hu (2011), we calculate ownership concentration using the Herfindahl index of the Top5 shareholders. Pucheta-Martinez and Bel-Oms (2016) argue for a negative relationship between ownership concentration and dividend payments. We control for Price to book ratio, defined as *P/B*, which captures the effect of investment opportunities on dividend payment (Esqueda, 2015). Setia-Atmaja (2010) demonstrate a negative price-to-book ratio-dividend payment relationship. We also control for leverage and define it as *LEV*. Byoun et al. (2016) show that leverage is negatively related to dividend payments. *Earnings* measure the ratio of retained earnings to total asset. We include this in the list of control variables because authors, such as DeAngelo, DeAngelo, and Stulz (2006) and Byoun et al. (2016) document a positive relationship for *Earnings* and dividend payments. More so, we consider *FCF* as a proxy free cash flow. We measure *FCF* as the operating cash flow less net capital investments during the year scaled by total assets. Adjaoud and Ben-Amar (2010) find that free cash flows positively drive dividend policy. Also, previous studies (Pucheta-Martinez and Bel-Oms, 2016; Saeed & Sameer, 2017) document a positive relationship between firm size and dividend payments. Consequently, we control for *SIZE* measured as the natural logarithm of total assets. Lastly, Byoun et al. (2016) argue that dividend payments may vary across different industries and years. We, therefore, capture these effects by including industry and year dummies in all our regressions. All variables are defined in Table 3.

Results

Descriptive statistics

Table 4 presents descriptive statistics for the variables used in the regressions. It shows that across the sample, 8.897% of all directors are women. This compares favourably with previous studies, which reported 8.5% of women directors in the USA (Adams & Ferreira, 2009), 4.9% in Norway (Bohren and Strom, 2010), and 7.8% in Spain (Pucheta-Martinez and Bel-Oms, 2016). Interestingly, only .956% of the total percentage of women directors are executive directors whilst non-executive women directors constitute 7.941%. Further, *D1*, *D2* and *D3* have means of 31.6%, 11.5% and 2.9% respectively. These indicate that of the firms with at least one woman director, 31.6% has just one woman director, 11.5% have two women directors, and only 2.9% have three or more women directors. This finding is also consistent with the Vietnamese case where only a “negligible” number of firms had three or more women directors (Nguyen, Rahman, & Zhao, 2013). These imply that recent calls for the appointment of more women directors have not really been successful and that firms resort to “tokenism” to circumvent the gender recommendations. Concerning dividend payments, for every dollar earned, firms pay out approximately \$.384 resulting in a total of about 84 million dollars in dividends. Other variables demonstrate the appropriateness of the sample selection criteria. For example, board independence has a mean of 77.768% and a standard deviation of 15.329, whilst board size has a mean of 6.529.

Tables 5 and 6 (Panel A and B) presents the sample distribution across GICS-ASX industry classifications (Panel A) and time (Panel B) in terms of dividend payments and

Table 3 Variable descriptions

Variables	Expected Sign	Descriptions
Dependent variables		
<i>DIV</i>		Natural log of total amount of dividend paid by a firm
<i>DIVY</i>		Ratio of dividend per share to net income
Main independent variables		
<i>WOMEN</i>	+	Percentage of women directors relative to total directors
<i>EXECWOMEN</i>	+	Percentage of executive women directors relative to total directors
<i>INDWOMEN</i>	+	Percentage of independent women directors relative to total directors
<i>D1</i>	+	A dummy variable equal to “1” if a firm has only one woman director, otherwise “0”
<i>D2</i>	+	A dummy variable equal to “1” if a firm has only two woman directors, otherwise “0”
<i>D3</i>	+	A dummy variable equal to “1” if a firm has three or more woman directors, otherwise “0”
Control variables		
<i>BSIZE</i>	+	Natural logarithm of total board size
<i>BIND</i>	+	Number of non-executive directors expressed as a percentage of total board size
<i>PERFORMANCE</i>	+	Net profit over total assets
<i>SIZE</i>	+	The natural logarithm of total assets
<i>P/B</i>	-	Stock price / total assets - intangible assets and liabilities
<i>LEV</i>	-	Total debt/total asset
<i>FCF</i>	+	The operating cash flow less net capital investments during the year scaled by total assets
<i>EARNINGS</i>	+	Retained earnings during the year scaled by total assets
<i>OWNCONC</i>	-	The Herfindahl index of the top 5 shareholdings
<i>INDUSTRY</i>		Dummies for each of the 11 industries based on ASX classification: Energy, Materials, Industrial, Consumer, Discretionary, Consumer Staples, Health Care, Information, Telecommunication and Services.
<i>YEAR</i>		Dummies for each of the 6 years from 2009 to 2014 inclusive

women directors. Interestingly, Panel A shows that although 46.012% of the sample firms have diverse boards, only 32.055% of firms with diverse boards pay dividends. This implies that about 67.945% of firms with diverse boards do not pay dividends. The critical mass theory suggests that women directors make a greater impact on board level decisions when there is a critical mass of three or more women (Kanter, 1977). In contrast, Table 4 shows that only 2.9% of firms with diverse boards have three or more women directors. Therefore, a reasonable explanation (to the finding that 67.945% of firms with boards do not pay dividends) could be that most of the sampled firms appoint “token” women, who get crowded out by the dominant male directors and thus limit the effect of these “token” women on dividend policy. Alternatively, to the extent that ownership concentration in Australia is high (Setia-Atmaja, 2009) and large blockholders influence board appointments (Monem, 2013), the findings could also

Table 4 Descriptive statistics

	N	Mean	Std. Deviation	Percentiles		
				25th	Median	75th
Women directors						
<i>WOMEN (%)</i>	1956	8.897	11.068	0	0	16.667
<i>EXECWOMEN (%)</i>	1956	.956	3.949	0	0	0
<i>INDWOMEN (%)</i>	1956	7.941	10.366	0	0	16.667
<i>D1</i>	1956	.316	.465	0	0	1
<i>D2</i>	1956	.115	.319	0	0	0
<i>D3</i>	1956	.029	.168	0	0	0
Dividends						
<i>DIVY</i>	1956	.384	1.029	0	.195	.617
<i>DIV (Million \$)</i>	1956	84	440	0	5.1	33
Board characteristics						
<i>BFSIZE</i>	1956	6.529	2.016	5	6	8
<i>BIND (%)</i>	1956	77.768	15.329	71.429	80	85.714
Firm characteristics						
<i>SIZE (Total Assets in Million\$)</i>	1956	2498.4	10,553.5	100	320	1200
<i>PERFORMANCE</i>	1956	.0410	.9150	-.029	.052	.0994
<i>P/B</i>	1956	2.370	6.576	.800	1.445	2.720
<i>LEV</i>	1956	2.370	22.810	1.250	1.610	2.060
<i>FCF (in Million\$)</i>	1956	98	930	-16	4.5	49
<i>EARNINGS (in Millions\$)</i>	1956	490	3900	-54	21	120
<i>OWNCONC</i>	1956	.185	.120	.154	.167	.257

All variables are as defined in Table 3

imply that most of the women directors are not independent of insiders (large blockholders) and this limits their willingness to free up resources from insiders' control through dividend payments. Further, the results in Panel A and B show substantial (limited) variations across industries (years) in terms of the percentage of firms that pay dividends. The differences in sectors may be attributed to variations in sector-specific need for reinvestments.

Table 7 presents the distribution of women directors across dividend-paying and non-dividend paying firms. It shows that women directors (*WOMEN*) constitute about 10.536% of total board size of dividend-paying firms compared to only 6.579% for non-dividend paying firms. More importantly, the mean difference is positive and statistically significant at the 1% level and implies a positive association between the percentage of women on the board and dividend payout. Interestingly, the mean difference of *EXECWOMEN* is negative and statistically significant. This is in contrast to the expected sign, but consistent with the findings of Pucheta-Martínez and Bel-Oms (2016) and suggests that executive women directors have a negative association with dividend payments. As for the other independent variables (*INDWOMEN*, *D1*, *D2* and *D3*), their mean difference is positive and statistically significant. These are consistent

Table 5 Sample distribution across GICS-ASX industry classification

Industry*	Total observations	# of firms	% of firms in industry	% of firm with WOB	% of dividend paying firms	% dividend paying firms with WOB
Energy	294	49	15.031	38.095	22.789	13.265
Materials	564	94	28.834	36.348	38.475	21.454
Industrial	366	61	18.712	43.716	79.781	34.973
Consumer Discretionary	300	50	15.337	60.000	92.000	56.000
Consumer Staples	90	15	4.601	60.000	80.000	58.889
Health Care	174	29	8.896	58.046	48.276	26.437
Information Technology	126	21	6.442	53.968	85.714	46.032
Telecommunication Services	42	7	2.147	47.619	71.429	33.333
Total	1956	326	100.000	46.012	58.589	32.055

*Global Industry Classification Standards (GICS) –Australian Securities Exchange(ASX)

with the expected signs and indicates that they exhibit positive associations with dividend payout.

To check for the presence of multicollinearity, we present a Pearson's bivariate correlation matrix of all the independent variables in Table 8. Observably, the literature is not unanimous as to the acceptable magnitude of the correlation coefficient. For example, Field (2005) suggests that a correlation of .8 or higher may indicate multicollinearity. However, Liu et al. (2014) indicate .7 as an indication of multicollinearity. Results in Table 8 show some high correlations (**in bold**). However, these high correlations are due to the alternative measurements of women directors and these variables are regressed alternatively. Apart from these, all the correlation coefficients in Table 8 are less than .4. We again recheck for multicollinearity using the variance inflation factor (VIF). The results (unreported) showed a mean VIF of 2.98. Based on these, we conclude that multicollinearity is not an issue in this study.

Table 6 Sample distribution by year

Year	Total Observations	% of firms with WOB	% of Dividend Paying firms	% of dividend paying firms with WOB
2009	326	31.902	58.896	22.393
2010	326	38.037	57.669	26.380
2011	326	46.933	58.282	31.288
2012	326	51.534	60.429	37.423
2013	326	54.601	60.429	38.650
2014	326	53.067	55.828	36.196
Total	1956	46.012	58.589	32.055

Table 7 Univariate analysis of women directors across dividend paying and non-dividend paying firms

Variable	Dividend Payer			Dividend Non-Payer			Difference	
	N	Mean	STD	N	Mean	STD	Mean Diff	t-stat
<i>WOMEN</i>	1146	10.536	11.143	810	6.579	10.541	3.957	7.909***
<i>EXECWOMEN</i>	1146	.873	3.949	810	1.074	4.337	-.200	1.107
<i>INDWOMEN</i>	1146	9.662	10.691	810	5.550	9.368	4.157	8.910***
<i>D1</i>	1146	34.60	44.60	810	27.40	44.60	7.200	3.397***
<i>D2</i>	1146	15.90	36.60	810	5.000	21.90	10.90	7.566***
<i>D3</i>	1146	4.100	19.80	810	1.200	11.00	2.800	3.724***

*, **, and *** represents statistical significance at the 10%, 5% and 1% level respectively. All variables are as defined in Table 3

Multivariate analysis

We test our hypotheses with a fixed-effects model.

To test hypothesis 1, we adopt a fixed-effects model in this form:

$$Div_{it} = \alpha_{it} + \beta_1 WOMEN_{it} + \beta_2 OWNCONC_{it} + \beta_3 BIND_{it} + \beta_4 PERFORMANCE_{it} + \beta_5 LEV_{it} + \beta_6 P/B_{it} + \beta_7 BSIZE_{it} + \beta_8 EARNINGS_{it} + \beta_9 FCF_{it} + \beta_{10} SIZE_{it} + \mu_i + \lambda_i + \varepsilon_{it} \quad (1)$$

To test hypothesis 2, we adopt a fixed effects model in this form:

$$Div_{it} = \alpha_{it} + \beta_1 WOMEN_{it} + \beta_2 OWNCONC * WOMEN_{it} + \beta_3 BIND_{it} + \beta_4 OWNCONC_{it} + \beta_5 PERFORMANCE_{it} + \beta_6 LEV_{it} + \beta_7 P/B_{it} + \beta_8 BSIZE_{it} + \beta_9 EARNINGS_{it} + \beta_{10} FCF_{it} + \beta_{11} SIZE_{it} + \mu_i + \lambda_i + \varepsilon_{it} \quad (2)$$

Where:

μ_i Industry effects;

γ_i Year effects; and

ε_{it} Error term.

All variables are as defined in Table 3.

To reduce heteroscedasticity, we use cluster-robust standard errors across all estimations. This is also consistent with Petersen (2009) and Thompson (2011).

First, we test whether board gender diversity increases dividend payments. The results in Table 9, Column 1, indicate that board gender diversity increases dividend payments ($WOMEN = .015$, $T-STAT = 3.33$). This result is consistent with that in Column 2, where the dividend payout ratio is the dependent variable ($WOMEN = .004$, $T-STAT = 2.41$). In economic terms, the estimated coefficients of .015 (Column 1) and .004 (Column 2) on *WOMEN* indicate that a one standard deviation increase in the percentage of women directors leads to an increase of about .166² (Column 1) and .044 (Column 2) in dividend payments.

² The regression of coefficient of *WOMEN* (0.015) multiplied by the standard deviation of *WOMEN* (11.068).

Table 8 Correlation matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<i>WOMEN</i>	1	1.000													
<i>EXECWOMEN</i>	2	.350+	1.000												
<i>INDWOMEN</i>	3	.934+	-.006	1.000											
<i>D1</i>	4	.415+	.153+	1.000											
<i>D2</i>	5	.537+	.108+	.532+	1.000										
<i>D3</i>	6	.414+	.146+	-.117+	-.062+	1.000									
<i>BSIZE</i>	7	.252+	-.011	.131+	.307+	.223+	1.000								
<i>BIND</i>	8	.116+	-.124+	.055	.076+	.088+	.149+	1.000							
<i>PERFORMANCE</i>	9	.039*	-.002	.043*	.039+	.022	.052**	-.012	1.000						
<i>SIZE</i>	10	.153+	-.030	.134+	.036	.139+	.246+	.086+	.034	1.000					
<i>P/B</i>	11	.017	.032	.005	.014	.004	-.019	.007	-.005	-.005	1.000				
<i>FCF</i>	12	.047**	-.012	.055**	.038*	.027	.025	.055**	.037	.140+	.037	1.000			
<i>EARNINGS</i>	13	.040	.003	.041*	.039*	.019	.010	.046**	-.055**	.310+	.022	-.030	1.000		
<i>LEV</i>	14	-.010	-.004	-.009	-.009	-.003	-.000	-.021	.031	-.001	-.002	.367+	.008	1.000	
<i>OWNCONC</i>	15	-.045+	-.014	-.043*	.024	-.033	-.028	-.014	-.085	.013	.023	-.016	.008	.002	1.000

*, **, and *** represents statistical significance at the 10%, 5% and 1% level respectively. All variables are as defined in Table 3

These results support hypothesis *H1A*. Adams and Ferreira (2009) and Gul et al. (2008) suggest two ways in which board gender diversity improves board monitoring. First, women directors may improve board monitoring through their unique cognitive and socio-psychological characteristics that make their decision making different from male directors (Man & Wong, 2013; Pucheta-Martínez & Bel-Oms, 2016). Second, women directors actually improve the monitoring behaviour of male directors (Adams & Ferreira, 2009) by creating intra-director monitoring (Kandel & Lazear, 1992), which improves the monitoring efficacy of male directors. This gender-induced improvement in efficiency increases dividend payments and reduces agency conflicts (Byoun et al., 2016; Chen et al., 2017). Theoretically, the result is consistent with agency theory's postulation that effective board monitoring can reduce the extent of managerial rent-seeking behaviour (Jensen & Meckling, 1976). This finding is also consistent with previous studies in Spain (Pucheta-Martínez & Bel-Oms, 2016) and the USA (Byoun et al., 2016; Chen et al., 2017) that suggest that board gender diversity increases dividend payments.

We next re-examine the women director-dividend payout nexus by distinguishing between executive and non-executive women directors. To do this, we classify the percentage of women directors (*WOMEN*) into one of two groups: (i) executive women directors (*EXECWOMEN*); and (ii) non-executive women directors (*INDWOMEN*). We then re-run Model 1 by replacing *WOMEN* with both *EXECWOMEN* and *INDWOMEN*. The results shown in Table 9 (Column 3) indicate that executive women impact negatively on dividend payments, but the relationship is not statistically significant ($EXECWOMEN = -.004$, $T-STAT = -.65$). In contrast, non-executive women directors have a positive and statistically significant relationship with dividend payments ($INDWOMEN = .017$, $T-STAT = 4.18$). The results are consistent with that of Column 4, where the dividend payout ratio is used as the dependent variable ($EXECWOMAN = .019$, $T-STAT = 1.37$) ($INDWOMAN = .066$, $T-STAT = 3.06$). In terms of economic significance, the results indicate that a one standard deviation change in the percentage of non-executive women directors increases dividend payments by .188 and .730 for Columns 3 and 4, respectively. These indicate that non-executive women directors increase dividend payment, but executive women directors do not.

These findings do not support hypothesis *H1a* and suggest instead that women directors are not a homogeneous group and that the executive effect has no impact on dividend payments. The result is intuitive because relative to executive directors, non-executive directors are independent of insiders (Weisbach, 1988) and may have greater incentive to reduce expropriation by freeing corporate resources from insiders (Easterbrook, 1984; Pucheta-Martinez and Bel-Oms, 2016). Empirically, the finding is consistent with Chen et al. (2017), who found a positive relationship between non-executive women directors and dividend policy in the USA. Nevertheless, our finding is in contrast to that of Pucheta-Martinez and Bel-Oms (2016), who reported no statistically significant relationship between independent women directors and dividend payment in Spain. The contrasting results may be attributed to differences in institutional setting. For example, Pucheta-Martinez and Bel-Oms (2016) note that board independence is low in Spain. Consistent with this, their descriptive statistics showed that non-executive women directors constitute only 2.880% of total board size in Spain relative to 8.7% in the USA (Chen et al., 2017) and 9.662% in the current Australian

Table 9 Gender diversity, ownership concentration and dividend policy

	Women and Dividend Policy			Executive Vs Non-Executive			Critical Mass of Women			Women, Dividend Payment and Financial Crisis			Women, Ownership Concentration, and Dividend Policy	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	DIV	DIVY	DIV	DIVY	DIV	DIVY	DIV	DIVY	DIV	DIVY	DIV	DIVY	DIV	DIVY
WOMEN	.015*** (3.33)	.004** (2.41)					.018*** (5.46)	.004** (2.26)	.028*** (3.55)	.005* (1.91)				
EXECWOMAN			-.004 (-.65)	.019 (1.37)										
INDWOMAN			.017*** (4.18)	.066*** (3.06)										
D1					.237** (2.28)	.103* (1.81)								
D2					.791*** (7.21)	.125** (2.13)								
D3					.816*** (4.95)	.451*** (8.78)								
CRISIS							.305*** (5.89)	.060* (1.69)						
WOMAN*CRISIS							-.014*** (-4.11)	-.002*** (3.65)						
WOMEN*OWNCONC													-.070*** (-2.87)	-.004*** (-3.65)

Table 9 (continued)

	Women and Dividend Policy			Women, Dividend Payment and Financial Crisis			Women, Ownership Concentration, and Dividend Policy	
	Women and Dividend	Executive Vs Non-Executive	Critical Mass of Women	Mass of Women	Women, Dividend Payment and Financial Crisis			
<i>OWNCONC</i>	-1.115*** (-2.61)	-1.086*** (-2.59)	-1.120*** (-2.60)	-0.132 (-1.49)	-1.093** (-2.53)	-0.585 (-1.15)	-0.089 (-0.90)	
<i>BIND</i>	.014*** (9.27)	.013*** (8.24)	.014*** (9.36)	.002*** (6.04)	.014*** (9.40)	.014*** (8.34)	.002*** (5.76)	
<i>PERFORMANCE</i>	2.412* (1.76)	2.369* (1.76)	2.330* (1.69)	.045 (.89)	2.371* (1.73)	2.442* (1.78)	.046 (.90)	
<i>LEV</i>	-.090** (-2.27)	-.096** (-2.39)	-.094** (-2.32)	-.001*** (-3.60)	-.095** (-2.37)	-.093** (-2.31)	-.001*** (-3.57)	
<i>P/B</i>	.050*** (2.61)	.053*** (2.72)	.052*** (2.64)	.008** (2.09)	.052*** (2.69)	.051*** (2.64)	.008** (2.08)	
<i>BSIZE</i>	2.486*** (24.72)	2.479*** (23.10)	2.205*** (14.93)	.048 (.32)	2.479*** (25.53)	2.488*** (23.94)	-.015 (-1.11)	
<i>EARNINGS</i>	.526*** (9.45)	.533*** (9.66)	.520*** (9.45)	.00316 (1.58)	.524*** (9.29)	.527*** (9.76)	.003 (1.60)	
<i>FCF</i>	.225 (.69)	.243 (.75)	.135* (1.84)	.128* (1.74)	.228 (.70)	.207 (.62)	.129* (1.76)	
<i>SIZE</i>	.014 (.75)	.013 (.70)	.012 (.66)	.004 (1.30)	.016 (.92)	.013 (.72)	.004 (1.31)	
<i>INDUSTRY</i>	YES	YES	YES	YES	YES	YES	YES	
<i>YEAR</i>	YES	YES	YES	YES	YES	YES	YES	
<i>CONSTANT</i>	11.95***	12.09***	12.39***	-.0677	11.83***	11.88***	-.127	

Table 9 (continued)

	Women and Dividend Policy		Executive Vs Non-Executive		Critical Mass of Women	Women, Dividend Payment and Financial Crisis	Women, Ownership Concentration, and Dividend Policy
	(27.62)	(-1.13)	(26.32)	(-1.20)	-27.58	(27.64)	(-45)
N	1146	1956	1146	1956	1146	1146	1956

*, **, and *** represents statistical significance at the 10%, 5% and 1% level respectively. All variables are as defined in Table 3

study. Therefore, the insignificant results reported by Pucheta-Martinez and Bel-Oms (2016) in Spain may be attributed to a lack of a critical mass of non-executive women directors in Spain.

Further, we examine whether having a critical mass of women directors result in higher dividend payments. To achieve this, we replace *WOMEN* in Eq. 1 with *D1*, *D2* and *D3*. The results in Column 5 indicate that when there is only one woman director on the board, she has a positive and statistically significant effect on dividend payout ($D1 = .237$, $T\text{-STAT} = 2.28$). However, although increasing the number of women directors to two results in a subsequent increase in dividend payout ($D2 = .791$, $T\text{-STAT} = 7.21$), the greatest impact occurs when there are three or more women on the board ($D3 = .816$, $T\text{-STAT} = 4.95$). Similarly, the results in column 6 show that one ($D1 = .103$, $T\text{-STAT} = 1.81$) and two ($D2 = .125$, $T\text{-STAT} = 2.13$) woman directors increase dividend payments. Nevertheless, the greatest impact occurs when firms have three or more women directors ($D3 = .451$, $T\text{-STAT} = 8.78$).

The findings support hypothesis *H1B* and imply that the positive women director-dividend policy relationship is greater when there are three or more women on the board. Theoretically, the results are consistent with the critical mass and token status theories' (Kanter, 1977; Kristie, 2011) suggestion that women have the greatest impact when there are three or more on the board. Empirically, the result is in consonance with prior studies that reported that subsequent increases in the number of women from one, to two, to three or more results in subsequent increases in continuous disclosure (Ahmed et al., 2017) and firm performance (Liu et al., 2014).

We next investigate how women directors influenced dividend payout during the financial crisis period. To do this, we create a dummy variable to capture the financial crisis period. Although the literature mostly classifies the years 2008 and 2009 as the financial crisis periods, our sample ranges from 2009 to 2014. Consequently, we create a dummy variable (*CRISIS*) that takes the value '1' for the year 2009 otherwise '0'. We further create an interaction term for women directors and the crisis period (*WOMEN*CRISIS*) and include both *CRISIS* and *WOMEN*CRISIS* in Model 1 with all other things remaining the same. The results in Table 9 (Column 7) show that the crisis dummy has a positive and statistically significant relationship with dividend payments ($CRISIS = .305$, $T\text{-STAT} = 5.89$). This indicates that firms paid more dividends during the crisis period. This finding is consistent with Bliss et al. (2015) that showed increased dividend payments in non-financial firms during the crisis period. However, women directors and the crisis interaction have a negative relationship with dividend payments ($WOMEN*CRISIS = -.014$, $T\text{-STAT} = -4.11$). The result is contrary to *H1Ca*, but supports hypothesis *H1Cb* and implies that women directors restrained the payments of dividends during the crisis period.

The financial crisis resulted in credit rationing, where lenders reduced the supply of credits (Bliss et al., 2015). Consequently, if firms needed capital injection, they may have had to rely on equity funding from shareholders. However, with the reduced investor confidence, these firms may also have had to pay higher dividends during this period in order to attract the required equity capital injection. Prior studies (Hunter & Sah, 2014; Loukil & Yousfi, 2016) suggest that women directors are associated with cash holdings. Thus, a reasonable explanation, for the negative effect of women on dividends may be that firms with women directors had higher cash holdings during this period. Accordingly, with the reduced investment opportunities during the crisis

periods (Ankudinov & Lebedev, 2016), these firms had no need for additional capital injections. Therefore, to reduce the higher agency cost of cash retention during the crisis period, women directors restrained dividend payments aimed at attracting additional capital. However, Young et al. (2008) and Johnson et al. (2000) showed that majority shareholder expropriation is highest during crises periods. Others, including Cotter and Silvester (2003), Monem (2013), and Lamba and Stapledon (2001) provide evidence that majority shareholders in Australia influence board appointments in order to facilitate their rent extraction objectives. Therefore, an alternative explanation could be that the women directors are affiliated or related to the majority shareholders. As a result, in the crisis period when majority shareholders' appetite for expropriation is high, they restrain dividend payments to facilitate the increased rent-seeking behaviour.

We next examine whether the ability of board gender diversity to impact on dividend payments differ between firms with different ownership structures. Specifically, we test how ownership concentration moderates the board gender diversity-dividend payout relationship. We do this by running Eq. 2, where we interact the percentage of women directors (*WOMEN*) with ownership concentration (*OWNCONC*). The results shown in Table 9 (column 8) indicate that the women director-ownership concentration interaction (*WOMEN*OWNCONC*) exhibits a negative and statistically significant relationship with dividend payments (*WOMEN*OWNCONC* = $-.070$, *T-STAT* = -2.87). The result is also consistent in Table 9 (Column 8) when using the dividend payout ratio (*WOMEN*OWNCONC* = $-.004$, *T-STAT* = -3.65). This indicates that in closely held firms, women directors reduce dividend payments. However, *WOMEN* have a positive and statistically significant relationship with dividend policy in both Table 9 Column 7 (*WOMEN* = $.028$, *T-STAT* = 3.55) and Column 8 (*WOMEN* = $.005$, *T-STAT* = 1.91), implying that women directors increase dividend payments in widely held firms. These results support *H2* and imply that, in widely held firms, a one standard deviation increase in the percentage of women directors increases dividend payout by .310 and .055 for Columns 7 and 8, respectively. In contrast, when ownership is concentrated, a one standard deviation increases in the percentage of women directors reduce dividend payments by 10.996 in Column 7 and .044 in column 8. Thus, with ownership concentration, the economic significance of the positive women director-dividend payment relationship reduces by 11.306 (from .310 to -10.996) and .099 (from .055 to $-.044$), respectively, for columns 7 and 8, respectively. Interestingly, *OWNCONC* is not statistically significant in both Columns 9 and 10, indicating that ownership concentration mainly reduces dividend payments through women directors.

Existing studies (Nguyen et al., 2013; Setia-Atmaja, 2009; Setia-Atmaja et al., 2011) support the dominance of the expropriation hypotheses in Australia. Within the expropriation hypothesis, majority shareholders enjoy private benefit of control (Shleifer & Vishny, 1986). Consequently, they may be incentivised to reduce dividend payments in order to increase the level of resources they can control. To facilitate this rent-seeking objective, controlling shareholders may influence board appointments (Cotter & Silvester, 2003; Lamba and Silvester, 2001; Monem, 2013). Therefore, the reduction (increase) in dividend payments in firms with concentrated ownership (dispersed ownership) may be attributed to the fact that the women on the boards of firms with high ownership concentration may be different from the women directors in dispersed firms. Thus, with high ownership concentration, substantial shareholders may influence the appointment of women directors, who are not independent of insiders. Consequently, these women

directors may facilitate the rent-seeking objective of substantial shareholders by restraining dividend payments in order to keep corporate resources under insiders' control. The findings suggest that, whereas board gender diversity may reduce PAs (in widely held firms), it may facilitate PPs when ownership is concentrated.

Robustness tests

Alternative measures of gender diversity

To check the robustness of our results, we test whether our results are sensitive to an alternative measure of gender diversity. We use the percentage of women to men ratio (*WOMEN2MEN*), which is measured as the percentage of women directors divided by the percentage of men directors. The results shown in Table 10 (columns 1 and 2) indicate that *WOMEN2MEN* exhibits a positive and statistically significant relationship with dividend payment ($WOMEN2MEN = .880$, $T-STAT = 2.88$) and ($WOMEN2MEN = .223$, $T-STAT = 2.01$) for Columns 1 and 2 respectively. These indicate that our results are qualitatively similar even when we use an alternative measure of gender diversity.

Reverse causality and endogeneity

Thus far, our regressions consider gender diversity as exogenous. However, our estimation may still suffer from endogeneity. Existing literature documents three sources of endogeneity namely: (i) simultaneity; (ii) omitted variable bias (Liu et al., 2014; Capezio & Mavisakalyan, 2016a, 2016b); and (iii) a correlation between the error term and any of the regressors. Dezső and Ross (2012) suggest that simultaneity can be dealt with by controlling for the lagged value of the dependent variable. Therefore, and following Dezső and Ross (2012), we deal with simultaneity by controlling for prior dividend payments. Specifically, we re-run Model 1 by including the lagged value of the dependent variable. The results shown in Table 10 (Column 3 and 4) indicate that even in this demanding specification, the effect of women directors on dividend payments remains qualitatively similar.

We make further attempts at reducing the effects of endogeneity on our regression estimates. Adams and Ferreira (2009) recommend the use of instrumental variables in dealing with various forms of endogeneity, including simultaneity, omitted variable bias and a correlated error term. We, therefore, employ the two-stage least squares (2SLS) approach to deal with endogeneity issues. This involves the identification of viable instrumental variables. There is evidence that the level of female director presence in an industry impacts the level of female directors in firms within that industry (Liu et al., 2014). Thus, we contend that *ceteris paribus*, the level of female directors in a firm will also be affected by the level of female directors in that firm's own industry. We, therefore, employ women ratio (*WRATIO*) as an instrument for the percentage of women directors (*WOMEN*). Following Liu et al. (2014) and Gyapong et al. (2016), we measure *WRATIO* as (the total number of women directors in an industry minus the total number of women directors in that firm) divided by (the total number of directors in that industry minus the total number of directors in that firm).

Table 10 Robustness tests

	Alternative Gender Measure		Endogeneity		Alternative Estimation			
	Women To Men Ratio		Reverse Causality		Censored-Tobit			
	(1) DIV	(2) DIVY	(3) DIV	(4) DIVY	(5) DIV	(6) DIVY	(7) DIV	(8) DIVY
WOMEN2MEN	.880*** (2.88)	.223** (2.01)			2SLS			
L.DIV			.047 (1.57)					
L.DIVY				.001 (.25)				
WOMEN			.018** (2.16)	.003* (1.87)			.015*** (4.03)	.004** (2.10)
WOMEN*					.037*** (6.62)	.006** (2.30)		
OWNVCONC	-1.121*** (-2.66)	-.152** (-2.43)	-1.511*** (-2.06)	-.114* (-1.86)	-1.043*** (-2.77)	-.147 (-.80)	-1.115*** (-3.02)	-.151** (-2.09)
BIND	.015*** (9.24)	.002*** (5.87)	.003 (.98)	.002*** (4.58)	.012*** (3.91)	.002 (1.57)	.014*** (4.81)	.002*** (4.01)
PERFORMANCE	2.416* (1.77)	-.0371 (-.84)	2.624** (1.99)	-.038 (-.88)	2.418*** (3.59)	-.035 (-.70)	2.412*** (3.64)	-.0367 (-.86)
LEV	-.088** (-2.21)	-.001*** (-6.26)	-.082** (-2.47)	-.001*** (-7.03)	-.113*** (-2.97)	-.001 (-.80)	-.090** (-2.44)	-.001*** (-6.37)
P/B	.049**	.004**	.044***	.004**	.059***	.004	.050***	.004***

Table 10 (continued)

	Alternative Gender Measure		Endogeneity		Alternative Estimation			
	Women To Men Ratio		Reverse Causality		Censored-Tobit			
	(1) DIV	(2) DIVY	(3) DIV	(4) DIVY	(5) DIV	(6) DIVY	(7) DIV	(8) DIVY
<i>BSIZE</i>	(2.56) 2.527***	(2.20) -.041	(2.94) 2.520***	(2.16) -.079	(3.43) 2.315***	(1.14) -.075	(2.94) 2.486***	(3.70) -.055
<i>EARNINGS</i>	(26.59) .527***	(-3.1) .002	(12.85) .378***	(-4.9) .002	(15.37) .520***	(-9.5) .002	(17.16) .526***	(-1.09) .002
<i>FCF</i>	(9.52) .228	(1.64) .109*	(10.61) .516	(1.64) .108*	(5.60) .152	(1.08) .107	(5.74) .225	(1.34) .108
<i>SIZE</i>	(.70) .014	(1.73) .005*	(.69) .021	(1.70) .002	(.39) .009	(1.39) .004	(.58) .014	(1.58) .004*
<i>INDUSTRY</i>	(.78) YES	(1.66) YES	(1.10) YES	(.71) YES	(1.04) YES	(.85) YES	(1.52) YES	(1.80) YES
<i>YEAR</i>	YES	YES	YES	YES	YES	YES	YES	YES
<i>CONSTANT</i>	11.87*** -27.74	-0.537 (-22)	12.18*** -23.72	.0201 -.07	12.28*** -28.55	-0.00837 (-0.05)	11.95*** -28.51	-0.0322 (-0.35)
N	1146	1956	606	1602	1145	1955	1146	1956

*, **, and *** represents statistical significance at the 10%, 5% and 1% level respectively. All variables are as defined in Table 3

In the first stage of the *2SLS* regression, we use *WRATIO* as an instrument for *WOMEN*. We then predict the $WOMEN^{\wedge}$ from the first stage regression and use it as the main independent variable in the second stage regression. Results for the second stage regression are shown in Table 10 columns 5 & 6. We obtain qualitatively similar results: the predicted value for the percentage of women ($WOMEN^{\wedge}$) exhibits a positive and statistically significant relationship with dividend payments. This indicates that our results are robust to endogeneity.

Alternative estimation technique

Maddala (1987) suggests that the Tobit model produces unbiased and consistent estimators because it maximises the likelihood function in determining the estimated coefficients. We, therefore, test the robustness of our results using the Tobit model. Results as presented in Table 10 (columns 7 and 8) are qualitatively similar: The percentage of women directors (*WOMEN*) has a positive and statistically significant relationship with dividend payments. This indicates the robustness of our results to alternative econometric estimation technique.

Sample selection biases

Heckman (1979) notes that using non-randomly selected samples to estimate regression equations can result in biases. Therefore, following previous studies (Hoechle, Schmid, Walter, & Yermack, 2012; Peel & Makepeace, 2012), we adopt the Heckman (1979) two-step model in addressing the potential sample selection biases. In the first stage, we model the decision to appoint a woman director. To achieve this, we use the women ratio (*WRATIO*) as the factor that may influence firms' decision to appoint female directors, whilst including all other control variables. We then calculate *Lambda* using the standard Heckman (1979) methodology and include it as an additional independent variable in the second stage to correct for possible selection biases. We also include all other control variables.

The results (unreported) indicate that *Lambda* has a negative coefficient, but not significant. More importantly, the percentage of women directors (*WOMEN*) exhibits a positive and statistically significant relationship with dividends payments. These imply that gender diversity still appears to increase dividend payments even after controlling for sample selection bias.

Summary and conclusion

In this study, we provide a novel perspective on the board diversity-dividend policy relationship in Australia. In the Australian institutional setting, the stronger external minority shareholder protection incentivises minority shareholders to effectively influence the board to increase dividend payments. At the same time, ownership is highly concentrated and blockholders enjoy private benefit of control. This may incentivise them to influence boards to reduce dividends payments in order to facilitate their rent-extraction objective.

After controlling for CG and other firm-specific characteristics, such as free cash flow, retained earnings to total assets ratio, price to book ratio, and firm size, we find

statistically credible evidence that board gender diversity positively impacts dividend payout. This finding is consistent with the results of previous studies (Byoun et al., 2016; Chen et al., 2016; Pucheta-Martínez & Bel-Oms, 2016) that women directors increase dividend payments. The findings are consistent with previous studies (Adams & Ferreira, 2009; Gul et al., 2008) that document that board gender diversity may alleviate agency problems by increasing the monitoring ability of the board. The results also indicate that the positive board gender diversity-dividend payments relationship is stronger, when there are three or more women on the board. This is consistent with the critical mass and token status theories' (Kanter, 1977; Kristie, 2011) postulation that women directors are able to exert greater influence on board decisions, when there is a critical mass of three or more. The finding is also in line with previous studies that documented that women directors have the greatest impact on firm performance (Gyapong et al., 2016) and continuous disclosure (Ahmed et al., 2017), where there are three or more on the board. These results imply that stakeholders and firms wanting to reap the full benefits of board gender diversity should discourage "tokenism" and rather advocate for the appointment of more than two women directors. We also find that non-executive directors increase dividend payments, whilst executive directors have no effect on dividend payments. This implies that women directors are not a homogeneous group, and that their effect on firm level outcomes depend on their level of independence. Further, consistent with Hirtle (2014), our results suggest that the financial crisis was associated with an increase in dividend payments; a situation which has been described as concerning due to its' ability to drain capital in a time of extreme financial distress (Acharya, Engle, & Richardson, 2012). However, our results suggest that women directors restrained the payments of dividend during the crisis period. This indicates that women directors make dividend payment decisions with recourse to business cycles in that they restrain dividend payments, when it is in the interest of firms and its stakeholders. This also implies the suitability of board gender diversity as an effective CG device.

Additionally, we find that the manner in which women directors influence dividend payment decisions is affected by different ownership structures. More specifically, women directors increase dividend payments in widely held firms. However, in closely held firms, women directors reduce dividend payments. In terms of theoretical implications, this suggests that board gender diversity reduces principal-agent conflicts, where firms have dispersed ownership and the agency problem exists between the dispersed shareholders and managers. In contrast, in a principal-principal agency conflict situation, where majority shareholders are keen to expropriate corporate resources, women directors are unable to increase dividend payments and free corporate resources out of the control of insiders. A reasonable explanation may be that the women directors in firms with concentrated ownership may be cronies of controlling shareholders so that they reduce dividend payments in order to increase firm resources at the control of insiders.

The findings also have implications for academics, management and policy-makers. The results support the argument that women directors improve board effectiveness. More specifically, the finding that women directors have the greatest impact on dividend policy when there are three or more supports the recent calls by policy-makers and some stakeholders for firms to increase the number of women directors. Moreover, the fact that women directors restrain dividend payments in crisis periods,

when external finance is scarce indicates that women directors make board decisions in consonance with the external business environment and this supports the business case for gender diversity. Despite these observations, the findings also call for caution on the part of academics and policy-makers. Thus, the finding that how women directors' affect dividend policy is influenced by ownership structure is an indication that boards' decisions considerably depend on companies' ownership structure. Consequently, studies examining the effect of board characteristics on firm level outcomes should also consider the effect of ownership structure. This also has implications for policy-makers in Australia and other countries with institutional settings, where blockholders enjoy private benefits of control. Thus, in addition to the call for the appointment of women directors in these countries, greater attention should also be paid to the independence of women directors appointment on the boards of closely held firms. This is to ensure that controlling shareholders do not appoint affiliated women directors to facilitate their rent extraction objective.

Our study is not without caveats. First, we are unable to consider shareholder heterogeneity and other female director-specific characteristics, such as female director experience, as well as their affiliation with the majority shareholder due to data limitations. Future studies in jurisdictions, where such data is accessible can consider such variables. Second, we note that the number of firms with three or more women directors is only a few (2.9%). This also signifies that most large firms in Australia appoint fewer than three women directors. Future studies can focus on jurisdictions, where most firms have three or more women directors. Third, although payout policy may involve both dividend payments and share repurchases, we are unable to consider share repurchases due to data limitations. Nevertheless, because of the full dividend imputation tax system in Australia, we believe that dividends will be the payout method of choice for Australian investors. Fourth, due to data unavailability, we measure ownership concentration using the Herfindahl index of the top five shareholdings rather than the total shareholdings. However, this approach has been previously used in the literature (see Jiang et al., 2011) and the results using this measure is consistent with prior literature in Australia (Setia-Atmaja, 2009; Monem, 2013).

References

- Abdelsalam, O., El-Masry, A., & Elsegini, S. 2008. Board composition, ownership structure and dividend policies in an emerging market: Further evidence from CASE 50. *Managerial Finance*, 34(12): 953–964.
- Acharya, V., Engle, R., & Richardson, M. 2012. Capital shortfall: A new approach to ranking and regulating systemic risks. *American Economic Review*, 102(3): 59–64.
- Adams, R. B., & Ferreira, D. 2009. Women in the boardroom and their impact on governance and performance. *Journal of Financial Economics*, 94(2): 291–309.
- Adhikari, B. K. 2018. Female executives and corporate cash holdings. *Applied Economics Letters*, 25(13): 958–963.
- Adjaoud, F., & Ben-Amar, W. 2010. Corporate governance and dividend policy: Shareholders' protection or expropriation? *Journal of Business Finance & Accounting*, 37(5–6): 648–667.
- Ahmed, A., Monem, R. M., Delaney, D., & Ng, C. 2017. Gender diversity in corporate boards and continuous disclosure: Evidence from Australia. *Journal of Contemporary Accounting and Economics*, 13(2): 89–107.
- Anderson, R. C., Reeb, D. M., Upadhyay, A., & Zhao, W. 2011. The economics of director heterogeneity. *Financial Management*, 40(1): 5–38.
- Ankudinov, A. B., & Lebedev, O. V. 2016. Dividend payouts and company ownership structure amid the global financial crisis: Evidence from Russia. *Post-Communist Economies*, 28(3): 384–404.

- Arthurs, J. D., Hoskisson, R. E., Busenitz, L. W., & Johnson, R. A. 2008. Managerial agents watching other agents: Multiple agency conflicts regarding underpricing in IPO firms. *Academy of Management Journal*, 51(2): 277–294.
- Arun, T. G., Almahrog, Y. E., & Aribi, Z. A. 2015. Female directors and earnings management: Evidence from UK companies. *International Review of Financial Analysis*, 39: 137–146.
- Attig, N., Boubakri, N., El Ghouli, S., & Guedhami, O. 2016. The global financial crisis, family control, and dividend policy. *Financial Management*, 45(2): 291–313.
- Baker, M., & Wurgler, J. 2004. Appearing and disappearing dividends: The link to catering incentives. *Journal of Financial Economics*, 73(2): 271–288.
- Balachandran, B., Khan, A., Mather, P. and Theobald, M., (2017). Insider ownership and dividend policy in an imputation tax environment. *Journal of Corporate Finance* 15 153–167.
- Baltagi, B. H., Feng, Q., & Kao, C. 2012. A Lagrange multiplier test for cross-sectional dependence in a fixed effects panel data model. *Journal of Econometrics*, 170(1): 164–177.
- Baranchuk, N., & Dybvig, P. H. 2009. Consensus in diverse corporate boards. *Review of Financial Studies*, 22(2): 715–747.
- Bathala, C. T., & Rao, R. P. 1995. The determinants of board composition: An agency theory perspective. *Managerial and Decision Economics*, 16(1): 59–69.
- Bebchuk, L., & Fried, J. 2004. *Pay without performance*, vol. 29. Cambridge, MA: Harvard University Press.
- Bebchuk, L. A., & Hamdani, A. (2009). The elusive quest for global governance standards. *University of Pennsylvania law review*, 1263–1317.
- Bhojraj, S., & Sengupta, P. 2003. Effect of corporate governance on bond ratings and yields: The role of institutional investors and outside directors. *The Journal of Business*, 76(3): 455–475.
- Bilimoria, D. 2000. Building the business case for women corporate directors. In *Women on corporate boards of directors*: 25–40. Dordrecht: Springer.
- Bliss, B. A., Cheng, Y., & Denis, D. J. 2015. Corporate payout, cash retention, and the supply of credit: Evidence from the 2008–2009 credit crisis. *Journal of Financial Economics*, 115(3): 521–540.
- Bradford, W., Chen, C., & Zhu, S. 2013. Cash dividend policy, corporate pyramids, and ownership structure: Evidence from China. *International Review of Economics and Finance*, 27: 445–464.
- Bugeja, M., Matolcsy, Z., & Spiropoulos, H. 2016. The association between gender-diverse compensation committees and CEO compensation. *Journal of Business Ethics*, 139(2): 375–390.
- Butler, S. R. 2012. All on board: Strategies for constructing diverse boards of directors. *Virginia Law & Business Review*, 7: 61.
- Byoun, S., Chang, K., & Kim, Y. S. 2016. Does corporate board diversity affect corporate payout policy? *Asia-Pacific Journal of Financial Studies*, 45(1): 48–101.
- Byrd, J., & Hickman, K. 1992. The case for independent outside directors. *Journal of Applied Corporate Finance*, 5(3): 78–82.
- Campello, M., Graham, J. R., & Harvey, C. R. 2010. The real effects of financial constraints: Evidence from a financial crisis. *Journal of Financial Economics*, 97(3): 470–487.
- Capezio, A., & Mavisakalyan, A. 2016a. Women in the boardroom and fraud: Evidence from Australia. *Australian Journal of Management*, 41(4): 719–734.
- Capezio, A., & Mavisakalyan, A. 2016b. Women in the boardroom and fraud: Evidence from Australia. *Australian Journal of Management*, 41(4): 719–734.
- Chen, G., Crossland, C., & Huang, S. 2016. Female board representation and corporate acquisition intensity. *Strategic Management Journal*, 37(2): 303–313.
- Chen, J., Leung, W. S., & Goergen, M. 2017. The impact of board gender composition on dividend payouts. *Journal of Corporate Finance*, 43: 86–105.
- Chen, X., Cheng, Q., & Wang, X. 2015. Does increased board independence reduce earnings management? Evidence from recent regulatory reforms. *Review of Accounting Studies*, 20(2): 899–933.
- Chen, Z., Cheung, Y. L., Stouraitis, A., & Wong, A. W. 2005. Ownership concentration, firm performance, and dividend policy in Hong Kong. *Pacific-Basin Finance Journal*, 13(4): 431–449.
- Cotter, J., & Silvester, M. 2003. Board and monitoring committee independence. *Abacus*, 39(2): 211–232.
- DeAngelo, H., DeAngelo, L., & Stulz, R. M. 2006. Dividend policy and the earned/contributed capital mix: A test of the life-cycle theory. *Journal of Financial Economics*, 81(2): 227–254.
- Demsetz, H., & Lehn, K. 1985. The structure of corporate ownership: Causes and consequences. *Journal of Political Economy*, 93(6): 1155–1177.
- Dezső, C. L., & Ross, D. G. 2012. Does female representation in top management improve firm performance? A panel data investigation. *Strategic Management Journal*, 33(9): 1072–1089.
- Dhanani, A. 2005. Corporate dividend policy: The views of British financial managers. *Journal of Business Finance & Accounting*, 32(7–8): 1625–1672.

- Easterbrook, F. H. 1984. Two agency-cost explanations of dividends. *The American Economic Review*, 74: 650–659.
- Esqueda, O. A. 2015. Signaling, corporate governance, and the equilibrium. *Journal of Finance*, 55: 565–613.
- Fama, E. F., & Jensen, M. C. 1983. Separation of ownership and control. *The Journal of Law and Economics*, 26(2): 301–325.
- Field, A. P. 2005. Is the meta-analysis of correlation coefficients accurate when population correlations vary? *Psychological Methods*, 10(4): 444–467.
- Floyd, E., Li, N., & Skinner, D. J. 2015. Payout policy through the financial crisis: The growth of repurchases and the resilience of dividends. *Journal of Financial Economics*, 118(2): 299–316.
- Gaur, A., & Kumar, M. 2018. A systematic approach to conducting review studies: An assessment of content analysis in 25 years of IB research. *Journal of World Business*, 53(2): 280–289.
- Gavious, I., Segev, E., & Yosef, R. 2012. Female directors and earnings management in high-technology firms. *Pacific Accounting Review*, 24(1): 4–32.
- Glazer, N., & Kristol, I. (Eds.) 1976. *The American commonwealth, 1976*. New York: Basic Books.
- Gugler, K., & Yurtoglu, B. B. 2003. Corporate governance and dividend pay-out policy in Germany. *European Economic Review*, 47(4): 731–758.
- Gul, F. A., Srinidhi, B., & Tsui, J. S. (2008). Board diversity and the demand for higher audit effort. Available at SSRN 1359450, *Board Diversity and the Demand for Higher Audit Effort*.
- Gull, A. A., Nekhili, M., Nagati, H., & Chtioui, T. (2018). Beyond gender diversity: How specific attributes of female directors affect earnings management. *The British Accounting Review*.
- Gyapong, E., Monem, R. M., & Hu, F. 2016. Do women and ethnic minority directors influence firm value? Evidence from post-apartheid South Africa. *Journal of Business Finance & Accounting*, 43(3–4): 370–413.
- Heckman, J. J. 1979. Sample selection bias as a specification error. *Econometrica: Journal of the Econometric Society*, 47(1): 153–161.
- Hirschman, A. O. 1970a. Exit, voice, and loyalty. In *Responses to decline in firms, organizations, and states*, vol. 25. Harvard university press.
- Hirschman, A. O. 1970b. Exit, voice, and loyalty. In *Responses to decline in firms, organizations, and states*, vol. 25. Harvard university press.
- Hirtle, B., (2014). Bank holding company dividends and repurchases during the financial crisis. *FRB of New York Staff Report*, (666).
- Hoechle, D., Schmid, M., Walter, I., & Yermack, D. 2012. How much of the diversification discount can be explained by poor corporate governance? *Journal of Financial Economics*, 103(1): 41–60.
- Holderness, C. G. 2003. A survey of blockholders and corporate control. *Economic Policy Review*, 9(1): 51–64.
- Hunter, D. M., & Sah, N. (2014). Cash is queen: Female CEOs' propensity to hoard cash.
- Huse, M., & Grethe Solberg, A. 2006. Gender-related boardroom dynamics: How Scandinavian women make and can make contributions on corporate boards. *Women in Management Review*, 21(2): 113–130.
- Ittonen, K., Miettinen, J., & Vähämä, S. 2010. Does female representation on audit committees affect audit fees? *Quarterly Journal of Finance and Accounting*, 49: 113–139.
- Jaggi, B., Leung, S., & Gul, F. 2009. Family control, board independence and earnings management: Evidence based on Hong Kong firms. *Journal of Accounting and Public Policy*, 28(4): 281–300.
- Jensen, M. C. 1986. Agency cost of free cash flow, corporate finance, and takeovers. *The American Economic Review*, 76(2): 323–329.
- Jensen, M. C., & Meckling, W. H. 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4): 305–360.
- Jiang, H., Habib, A., & Hu, B. 2011. Ownership concentration, voluntary disclosures and information asymmetry in New Zealand. *The British Accounting Review*, 43(1): 39–53.
- Jiraporn, P., Kim, Y., & Kim, J. 2011. Dividend policy and corporate governance quality: Evidence from ISS. *The Financial Review*, 46(2): 251–279.
- Jiraporn, P., Leelalai, V., & Tong, S. 2016. The effect of managerial ability on dividend policy: How do talented managers view dividend payouts? *Applied Economics Letters*, 23(12): 857–862.
- Johnson, S., Boone, P., Breach, A., & Friedman, E. 2000. Corporate governance in the Asian financial crisis. *Journal of Financial Economics*, 58(1–2): 141–186.
- Kandel, E., & Lazear, E. P. 1992. Peer pressure and partnerships. *Journal of Political Economy*, 100(4): 801–817.
- Kanter, R. M. 1977. Some effects of proportions on group life: Skewed sex ratios and responses to token women. *American Journal of Sociology*, 82(5): 965–990.
- Khaw, K. L. H., Liao, J., Tripe, D., & Wongchoti, U. 2016. Gender diversity, state control, and corporate risk-taking: Evidence from China. *Pacific-Basin Finance Journal*, 39: 141–158.
- Knyazeva, A., Knyazeva, D., & Masulis, R. W. 2013. The supply of corporate directors and board independence. *The Review of Financial Studies*, 26(6): 1561–1605.

- Konijn, S. J., Kräussl, R., & Lucas, A. 2011. Blockholder dispersion and firm value. *Journal of Corporate Finance*, 17(5): 1330–1339.
- Konrad, A. M., Kramer, V., & Erkut, S. 2008. Critical mass: The impact of three or more women on corporate boards. *Organizational Dynamics*, 37(2): 145–164.
- Kowalewski, O., Stetsyuk, I., & Talavera, O. 2008. Does corporate governance determine dividend payouts in Poland? *Post-Communist Economies*, 20(2): 203–218.
- Kramer, V. W., Konrad, A. M., & Erkut, S. 2006. *Critical mass on corporate boards: Why three or more women enhance governance*: 74. Wellesley Centers for Women. Wellesley College.
- Kristie, J. 2011. The power of three. *Directors & Boards*, 35(5): 22–32.
- Kumar, J. 2006. Ownership structure and dividend payout policy in India. *Corporate Governance and Dividend Payout in India. Journal of Emerging Market Finance*, 5(1): 15–58.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. 1997. Legal determinants of external finance. *Journal of Finance*, 52(3): 1131–1150.
- La Porta, R. L., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. 1998. Law and finance. *Journal of political economy*, 106(6): 1113–1155.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. 1999. Investor protection and corporate governance. *Journal of Financial Economics*, 58(1): 3–27.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. 2000a. Investor protection and corporate governance. *Journal of Financial Economics*, 58(1): 3–27.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. 2000b. Agency problems and dividend policies around the world. *The Journal of Finance*, 55(1): 1–33.
- La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. 2006. What works in securities laws? *The Journal of Finance*, 61(1): 1–32.
- Lamba, A. S., & Stapledon, G. (2001). The determinants of corporate ownership structure: Australian Evidence, University of Melbourne Public Law Research Paper No. 20.
- Lee, K. F. 2010. Retail minority shareholders and corporate reputation as determinant of dividend policy in Australia. *Pacific-Basin Finance Journal*, 18(4): 351–368.
- Levi, M., Li, K., & Zhang, F. 2014. Director gender and mergers and acquisitions. *Journal of Corporate Finance*, 28: 185–200.
- Li, J., & Qian, C. 2013. Principal-principal conflicts under weak institutions: A study of corporate takeovers in China. *Strategic Management Journal*, 34(4): 498–508.
- Li, W., & Lie, E. 2006. Dividend changes and catering incentives. *Journal of Financial Economics*, 80(2): 293–308.
- Liang, H., Renneboog, L., & Sun, S. L. 2015. The political determinants of executive compensation: Evidence from an emerging economy. *Emerging Markets Review*, 25: 69–91.
- Linck, J. S., Netter, J. M., & Yang, T. 2008. The determinants of board structure. *Journal of Financial Economics*, 87(2): 308–328.
- Liu, Y., Wei, Z., & Xie, F. 2014. Do women directors improve firm performance in China? *Journal of Corporate Finance*, 28: 169–184.
- Loukil, N., & Yousfi, O. 2016. Does gender diversity on corporate boards increase risk-taking? *Canadian Journal of Administrative Sciences/Revue Canadienne des Sciences de l'Administration*, 33(1): 66–81.
- Lucas-Pérez, M. E., Mínguez-Vera, A., Baixauli-Soler, J. S., Martín-Ugedo, J. F., & Sánchez-Marín, G. 2015. Women on the board and managers' pay: Evidence from Spain. *Journal of Business Ethics*, 129(2): 265–280.
- Maddala, G. S. 1987. Limited dependent variable models using panel data. *Journal of Human Resources*, 22(3): 307–338.
- Man, C. K., & Wong, B. (2013). Corporate governance and earnings management: A survey of literature.
- McGuinness, P. B., Lam, K. C., & Vieito, J. P. 2015. Gender and other major board characteristics in China: Explaining corporate dividend policy and governance. *Asia Pacific Journal of Management*, 32(4): 989–1038.
- Mian, A., & Sufi, A. 2010. The great recession: Lessons from microeconomic data. *American Economic Review*, 100(2): 51–56.
- Miller, M. H., & Modigliani, F. 1961. Dividend policy, growth, and the valuation of shares. *The Journal of Business*, 34(4): 411–433.
- Mitton, T. 2002. A cross-firm analysis of the impact of corporate governance on the east Asian financial crisis. *Journal of Financial Economics*, 64(2): 215–241.
- Monem, R., & Ng, C. 2013. Australia's 'two-strikes' rule and the pay-performance link: Are shareholders judicious? *Journal of Contemporary Accounting and Economics*, 9(2): 237–254.
- Monem, R. M. 2013. Determinants of board structure: Evidence from Australia. *Journal of Contemporary Accounting and Economics*, 9(1): 33–49.

- Nenova, T. 2003. The value of corporate voting rights and control: A cross-country analysis. *Journal of Financial Economics*, 68(3): 325–351.
- Nguyen, P., Rahman, N., & Zhao, R. 2013. Ownership structure and divestiture decisions: Evidence from Australian firms. *International Review of Financial Analysis*, 30: 170–181.
- Nielsen, S., & Huse, M. 2010. The contribution of women on boards of directors: Going beyond the surface. *Corporate Governance: An International Review*, 18(2): 136–148.
- O’Sullivan, N. 2000. The impact of board composition and ownership on audit quality: Evidence from large UK companies. *The British Accounting Review*, 32(4): 397–414.
- Osili, U. O., & Paulson, A. (2007). Bank crises and investor confidence: Learning from the experience of US immigrants”. *Unpublished paper. Chicago: Federal Reserve Bank of Chicago. Access to Financial Services and Asset Accumulation.*
- Osma, B. G. 2008. Board independence and real earnings management: The case of R&D expenditure. *Corporate Governance: An International Review*, 16(2): 116–131.
- Peel, M. J., & Makepeace, G. H. 2012. Differential audit quality, propensity score matching and Rosenbaum bounds for confounding variables. *Journal of Business Finance & Accounting*, 39(5–6): 606–648.
- Peng, M. W. 2006. *Global strategy*. Cincinnati, OH: Thomson South-Western.
- Peni, E., & Vähämaa, S. 2010. Female executives and earnings management. *Managerial Finance*, 36(7): 629–645.
- Petersen, M. A. 2009. Estimating standard errors in finance panel data sets: Comparing approaches. *Review of Financial Studies*, 22(1): 435–480.
- Prasanna, K. P. 2014. Firm-level governance quality and dividend decisions: Evidence from India. *International Journal of Corporate Governance*, 5(3/4): 197–222.
- Prommin, P., Jumreornvong, S., & Jiraporn, P. 2014. The effect of corporate governance on stock liquidity: The case of Thailand. *International Review of Economics and Finance*, 32: 132–142.
- Pucheta-Martínez, M. C., & Bel-Oms, I. 2016. The board of directors and dividend policy: The effect of gender diversity. *Industrial and Corporate Change*, 25(3): 523–547.
- Renneboog, L., & Szilagyi, P. G. (2015a). How relevant is dividend policy under low shareholder protection?. *Journal of International Financial Markets, Institutions and Money (2015)* [accepted Manuscript].
- Renneboog, L., & Szilagyi, P. G. (2015b). How relevant is dividend policy under low shareholder protection?. *Journal of International Financial Markets, Institutions and Money (2015)* [accepted Manuscript].
- Rozeff, M. S. 1982. Growth, beta and agency costs as determinants of dividend payout ratios. *Journal of Financial Research*, 5(3): 249–259.
- Saeed, A., & Sameer, M. 2017. Impact of board gender diversity on dividend payments: Evidence from some emerging economies. *International Business Review*, 26(6): 1100–1113.
- Schellenger, M. H., Wood, D. D., & Tashakori, A. 1989. Board of director composition, shareholder wealth, and dividend policy. *Journal of Management*, 15(3): 457–467.
- Schmidt, B. 2015. Costs and benefits of friendly boards during mergers and acquisitions. *Journal of Financial Economics*, 117(2): 424–447.
- Setia-Atmaja, L. 2010. Dividend and debt policies of family controlled firms: The impact of board independence. *International Journal of Managerial Finance*, 6(2): 128–142.
- Setia-Atmaja, L., Haman, J., & Tanewski, G. 2011. The role of board independence in mitigating agency problem II in Australian family firms. *The British Accounting Review*, 43(3): 230–246.
- Setia-Atmaja, L. Y. 2009. Governance mechanisms and firm value: The impact of ownership concentration and dividends. *Corporate Governance: An International Review*, 17(6): 694–709.
- Shamsabadi, H. A., Min, B. S., & Chung, R. 2016. Corporate governance and dividend strategy: Lessons from Australia. *International Journal of Managerial Finance*, 12(5): 583–610.
- Sharma, V. 2011. Independent directors and the propensity to pay dividends. *Journal of Corporate Finance*, 17(4): 1001–1015.
- Shleifer, A., & Vishny, R. W. 1986. Large shareholders and corporate control. *The Journal of Political Economy*, 94(3, Part 1): 461–488.
- Smits, R. H. J. A. (2012). *Effect of a financial crisis on the dividend payout policy of a firm* (doctoral dissertation, thesis, master thesis Tilburg University).
- Spangler, E., Gordon, M. A., & Pipkin, R. M. 1978. Token women: An empirical test of Kanter’s hypothesis. *American Journal of Sociology*, 84(1): 160–170.
- Su, Y., Xu, D., & Phan, P. H. 2008. Principal—Principal conflict in the governance of the Chinese public corporation. *Management and Organization Review*, 4(1): 17–38.
- Thompson, S. B. 2011. Simple formulas for standard errors that cluster by both firm and time. *Journal of Financial Economics*, 99(1): 1–10.

- Triana, M. D. C., Miller, T. L., & Trzebiatowski, T. M. 2013. The double-edged nature of board gender diversity: Diversity, firm performance, and the power of women directors as predictors of strategic change. *Organization Science*, 25(2): 609–632.
- Valenius, J. 2007. A few kind women: Gender essentialism and Nordic peacekeeping operations. *International Peacekeeping*, 14(4): 510–523.
- van Essen, M., van Oosterhout, J. H., & Carney, M. 2012. Corporate boards and the performance of Asian firms: A meta-analysis. *Asia Pacific Journal of Management*, 29(4): 873–905.
- Villalonga, B., & Amit, R. 2006. How do family ownership, control and management affect firm value? *Journal of Financial Economics*, 80(2): 385–417.
- Ward, D., & Filatotchev, I. 2010. Principal–principal–agency relationships and the role of external governance. *Managerial and Decision Economics*, 31(4): 249–261.
- Weisbach, M. S. 1988. Outside directors and CEO turnover. *Journal of Financial Economics*, 20: 431–460.
- Yarram, S. R. 2015. Corporate governance ratings and the dividend payout decisions of Australian corporate firms. *International Journal of Managerial Finance*, 11(2): 162–178.
- Yarram, S. R., & Dollery, B. 2015. Corporate governance and financial policies: Influence of board characteristics on the dividend policy of Australian firms. *Managerial Finance*, 41(3): 267–285.
- Young, M. N., Peng, M. W., Ahlstrom, D., Bruton, G. D., & Jiang, Y. 2008. Corporate governance in emerging economies: A review of the principal–principal perspective. *Journal of Management Studies*, 45(1): 196–220.

Publisher's note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Ernest Gyapong Dr Gyapong is a senior lecturer at Massey University School of Accountancy, New Zealand.